DETROIT PUBLIC LIBRARY

JUN 9 1965

Machinery

TECHNOLOGY & SCIENCE

A JOURNAL OF PRODUCTION ENGINEERING AND MACHINE TOOLS

VOLUME 105

July to December 1964

THE MACHINERY PUBLISHING COMPANY, LTD.

Editorial Office:
CLIFTON HOUSE, 83-117 EUSTON ROAD, LONDON, N.W.1
Telephone: EUSton 8441 (4 lines) Telegrams: Machtool, London, N.W.1

Head Office:

CHANGE OF ADDRESS

Please note as from **7th MAY** *our new address will be*

NEW ENGLAND HOUSE
NEW ENGLAND STREET
BRIGHTON 1

Phone: Brighton 61334

INDEX TO MACHINERY

VOLUME 105

ALL ITEMS MARKED * ARE PATENT SPECIFICATIONS

A PAGE

AEI Automation, Ltd.:
Computer of solid-state design for Dorman Long rolling mill 985
AEI co-ordinate setting equipment..
Asquith 6-in. spindle floor-type horizontal boring machine with 531, 536
AEI digital co-ordinate setting system 572
AEI Industrial Group:
Ceramic cutting tools - where can they be used today? 900
AEI (see also Associated Electrical Industries, Ltd.)
A.I. Welders, Ltd.:
Welding installation for Dowty pit props 1132
A.R.O. Machinery Co., Ltd.:
Portable spot welding gun 55
Abrasive band machine. Morrisflex type MD 706 603
Abrasive belt finishing machine. Thos. White type TOP/VW Speedfinisher .. 1081
Abrasive material for vibratory finishing. Norton Tumblex TJ 1431
Abrasives for industry 795, 1087
Absorbit, Ltd.:
Foundation for drop forging hammer 327
Abwood Machine Tools, Ltd.:
Twin-spindle vertical surface grinder 29
Vacuum chucks 51, 748
Acbars, Ltd. 18, 210, 915, 987
Accles & Pollock, Ltd.:
Incandescent roller hearth furnace installation 178
Accuracy. Testing machine tool 1291
Acetal resin for clock components. Use of Du Pont Delrin 919
Achler, Howard S.:
Urethane tooling - applications and advantages 1012
Acid pickling restrainer. Stamine LF 1383
Aciera production drilling machine with co-ordinate positioning table 27
Acme-Efco, Ltd.:
Machine for polishing motor car bumpers.. 1276
Semi-automatic machine for polishing metal parts 1276
Acme-Gridley Pittler type PRCF 200/6 6-spindle chucking automatic 644
Acme Manufacturing Co. 1276
Acramatic Hundred tape control systems. Cincinnati 575
Actuator. Dowty Rotol type C hydraulic 74
Adam Machine Equipment, Ltd. 27, 41, 268
Adams, H.D.:
Milling "waffle" pattern in Saturn tank skin panels 752
Adan Hydraulics, Ltd. 996

Adcock & Shipley (Bridgeport), Ltd.:
Bridgeport milling machine fitted with Linderode spark erosion unit .. 385
First "Bridgeport by Adcock & Shipley" milling machine 228
New Bridlington factory.. 1541
Adcock & Shipley, Ltd.:
Demonstration of milling with cutters of high positive rake on a type 4 HG horizontal machine 277
Direct comparison of chatter behaviour in milling machines .. 387
Adding machines. Production of components for Adwell 620, 732
Addison Tool Co., Ltd. .. 270, 858, 1536
Adiprene tooling - applications and advantages 1012

PAGE

Adiprene urethane rubber stripper units for press tools 1522
Advisory and technical services of the Rural Industries Bureau 548
Adwell adding machines. Production of components for 620, 732
Aerograph DeVilbiss Co., Ltd.:
Airless spray painting installation for coating both surfaces of ships' plates on a roller conveyor 1391
Aeropan air-gauging equipment. Massi 524
Aget Mfg. Co.:
Mistkop vapour collectors 61
Agie Industrial Electronics, Ltd.:
Agietron spark-erosion machine .. 1027
Air bearings. New Westwind range of grinding units with 659, 725
Air bearings, The use of, in grinding machines 150, 883
Air compressor. Atlas Copco type DE42 1080
Air cylinder performance. PERA investigations into 1055
Air cylinders. Demonstration by Nickols Automatics of equipment for automatic operation of capstan lathe by means of 1198
Air flow detection unit. Jet-Tron .. 828
Air-gauging equipment. Massi Aeropan 524
Air-gauging machine for checking brake linings. Sigma semi-automatic .. 484
Air-operated automatic capstan lathe, Nickols Sprint 1197
Air-operated bar feed unit for Ward capstan lathes. Mercer 1042
Air-operated butt welder. Meritus A.B.5 80
Air-operated press. Simple 911
Air-operated surface-finish comparator. Massi 525
Air operation of capstan lathes. Sequence control panel employed with Nickols system of 1084
Airbrasive tool for deburring. Use of 438
Aircraft wing panels, Delicate machining operations on, facilitated by control of cutter load.. 1076
Airliner components. Ferranti-controlled machines for operations on Concord 370
Airmec, Ltd.:
Autoset type N271 tape control equipment 573
Ajax Machine Tool Co., Ltd.:
Cleveland No. 3 universal milling machine.. 110
Type AJ 150 radial drilling machine 882
Alcera type E.N. 700 horizontal milling machine.. 210
Aldellverken U 35 production drilling machine.. 1446
Alexander, George H., Machinery, Ltd.:
Some examples of work carried out on the Alexander die-sinking machine.. 982
See also 15, 37
Alfa-Laval Co., Ltd.:
New range of separators 1522
Algebra. Boolean 1418
Alkaline cleaner. Efco 3630 .. 867, 1131
All Wheel Drive, Ltd.:
Welding operations on Michigan tractor shovel frames 180
Allchin, E.F., & Co., Ltd.:
The Ratchfix spanner 164
Allen, Edgar, & Co., Ltd.:
A large tool-holder for roll turning 872

PAGE

Allen West & Co., Ltd.:
UAC unit contactors 607
Alloy. New nickel high-temperature casting 794
Allweather Paints, Ltd.:
Pitapak repair material.. 212
Almasol M.16/62 synthetic soluble oil 281
Aluminium-bronze die components. Narite 217
Aluminium chassis component for electronic equipment, Profile milling an, on an Alexander die-sinking machine.. 984
Aluminium plate. Fielding & Platt stretching machine for 220
Aluminium-polythene laminate material 189
Aluminium supplied in the molten condition 1086
Aluminium windings for lifting magnets 322
Alwayse Castor Co., Ltd.:
Ball transfer stands 245
Alzmetall co-ordinate setting table for drilling machines 1534
American Tool Works Co.:
Maxi-Speed Hole Wizard 6-ft. radial drill set up for demonstration of high-speed drilling 275

Amplifier, image, for quality control applications. Marconi 1434
Amplifier. Orbit hydraulic torque .. 996
Analyser. Rotax sequential 666
Analyser. "English Numbering Machines" series 488 statistical .. 206

Analysis. An application of critical path 1440
Anderston Clyde Engineers, Ltd.:
Scimitar hydro-automatic metal-cutting machine 1163
Andrea, Fabbrica Macchine S.:
Cutting very large segmental gears 1314
Andrews, A.J.F.:
Cheshire tube flaring machine .. 666
Andrews, W.R., (Engnrs.), Ltd.:
Radially-adjustable boring head .. 465
Angle-approach machine. Automatic work handling equipment on a Newall-Keighley 320
Angle and parallelism testing instruments. Suhl 526
Angles. Instrument for measuring bearing contact 1329
* Angular positioning arrangement for a lathe spindle 656
Annealing installation for stainless steel strip, Automatic 262
Anocut electrical equipment. Hammond electrolytic tool grinder with.. .. 23
Ansell, C.T., A.M.I.Mech.E.:
Ceramic cutting tools - where can they be used today? 900
Anti-seizing compound. New 649
Appleby-Frodingham Steel Co.:
Use of large tool-holder for turning large diameter rolls for steel mills 872

Apresta type SCTP 6.3 automatic guillotine. Equipment for feeding sheet metal to an 364
Araldite dies for explosive forming .. 1095
Arboga heavy-duty drilling machines .. 937
Arboga type G 1304 drilling machine .. 1207
Arboga type GM 3508 pillar-type drilling machine 989
Arboga EM.825 vertical milling machine 28
Archdale single-spindle numerically-controlled drilling machine 1462

PAGE

Ariel air-electric multi-dimension inspection machine. Workpiece set up in the gauging head of a Sigma .. 479
Arno type FA 1500 horizontal milling, facing and boring machine 767
Artillerie-Inrichtingen type U2 tool and cutter grinder 119
Asakura, K.:
New crossrail construction 992
Asbestos- and glass-reinforced engineering plastics 404
Ashley Bros.:
Vertical broaching machine 226
Ashmead, Gordon:
Gauge inspection in micro-inches .. 356
Ashton, N.C., Ltd.:
Narite aluminium-bronze alloy die components 217
Asquith, William, Ltd.:
New ram type milling and boring machine with hydrostatic bed- and column-ways 101
6-in. spindle floor-type horizontal boring machine 531, 536
Type 3PS 8-ft. radial drilling machine 532
Type 6PT 23/96 8-ft. Powerthrust radial drilling machine 693
16- by 20-in. ram of 5⅛-in. spindle horizontal boring and milling machine 698
6-in. spindle ram-type milling and boring machine installed in Babcock & Wilcox works 1409
8-in. ram type borer in English Electric works 73
Assembling a plywood and batten packing case. Pneumatically-operated Spotnailer used for.. 493
Assembling rotors and shafts by bonding 1435
Assembly, Automatic, and precision reaming on a transfer machine .. 248
Assembly fixtures. Nylon 912
Assembly. Fully automatic 736
Assembly methods for cash-register production. Automatic and semi-automatic 732
Assembly operations. The possibilities for automating 514
Associated Electrical Industries, Ltd.:
* Bearing lubrication system 212
Digital co-ordinate setting system .. 572
Kapak range of electric motors .. 1112
Association of Engineering Distributors annual meeting and luncheon 1226
Astro-nuclear laboratory. New facilities at Westinghouse 814
Ateliers G.S.P. type 25R vertical drilling and boring machine 808
Atkins, W.F., A.M.I.Mech.E., A.M.I.Prod.E.:
A combined micrometer and sensitive indicator unit 271
Atlantic co-ordinate table fitted with Ferranti 2-axis positioning equipment 632
Atlas Copco (Gt. Britain), Ltd.:
Installation of Dexton flow racking for handling boxes of drill steels .. 551
Type DE42 air compressor 1080
Atomic fuel installations. Electron beam welding operations on large parts for 681
"Atomium 64" component. Kummer automatic lathe set up for producing an 431
Attachment for Lipe bar feed units. High-speed 132
Attachment for multi-spindle bar automatic. Schutte 4-station second-operation 320, 1538
Auteq type 93 continuous strip spraying machine 440
Auto-Robot programme-controlled capstan lathe. Application of Herbert 2D 1215

PAGE

Auto Transmissions, Ltd.:
New de Normanville overdrive 870, 1393
Autogil type 36 guillotine. Wallis .. 1333
Autokon system for producing ships' plates 348
Automated forging 1168
Automated type C cold sawing machine. Noble & Lund 22-in. 116
Automatic assembly. Fully 736
Automatic assembly and precision reaming on a transfer machine .. 248
Automatic. B.S.A. Acme-Gridley 6-spindle, Magazine bar feed unit for 161
Automatic, B.S.A. type 138L, with camshaft accelerator mechanism and electro-hydraulic copy turning attachment 535
Automatic, B.S.A. type 95E chucking, with numerical sequence control .. 1024
Automatic. Bergonzo/Nomo camless single-spindle turret-type 809
Automatic bright annealing installation for stainless steel strip.. 262
Automatic, Brown & Ward bar, with counter headstock 19
Automatic camshaft grinder. Schaudt type ACM 16
Automatic capstan lathe. Nickols Sprint air-operated 1197
Automatic chucking lathe. Pittler Pinumat tape-controlled 1159
Automatic. New Churchill type CA9-10 all-hydraulic single-spindle chucking 86
Automatic circular saw sharpening machine. Noble & Lund 764
Automatic circular sawing machine. Wagner type WKALN 360 31
Automatic cold sawing machine. Birfield 1039
Automatic. Conomatic type T.V. 6-spindle, In-feed slides on the .. 479
Automatic cutting-off machine for tubing. Vogel 2000 1536
Automatic-cycle copying lathe. Progres-Jones & Lamson type EFA 36
Automatic-cycle equipment, Plug-board, on the Heyligenstaedt hydraulic copy-turning lathe 969
Automatic-cycle milling machines. Birfield type B 868
Automatic cycles, Panel for selection of, on Jones & Lamson type ATL 4½ by 24 automatic turret lathe 968
Automatic Equipment, Ltd.:
Auteq type 93 continuous strip spraying machine 440
Type CM 600 automatic paint spraying unit 1155
Automatic facing and centring machine. Hey double-ended No. 3 1031
Automatic facing lathe, Progres Industrial-Jones & Lamson type C3, set up for operation on iron casting 1192
Automatic fitted with cruciform attachment. Close-up view of Schutte 6-spindle 320, 1538
Automatic gauging installation for inspection of motor vehicle engine pistons. Micromatic 1428
Automatic gauging on special-purpose machine 735
Automatic gear grinding machine. East German 307
Automatic gear grinding machine. Michigan 879
Automatic gear hobbing machine. Morat type B.9 fully- 36
Automatic gear tooth deburring and chamfering machine. Cross type 85 1332
Automatic. Gildemeister 8-spindle chucking, Work loading and unloading equipment on 321
Automatic gravity die casting machines. Application of Escofier 815
Automatic. Herbert No. 2 Programauto programme-controlled chucking .. 481

PAGE

Automatic hot-chamber die casting machine. IDRA Inclinata 120-ton .. 328
Automatic hydraulic copying lathe, Set-up on Progres-Jones & Lamson, for turning a shaft from a forging of En. 353 steel 434
Automatic lamination notching press. Zeulenroda 363
Automatic lathe, Kummer K20 2-spindle, set up for producing an "Atomium 64" component 431
Automatic lathe. Manurhin-Decomat DCM 43 1303
Automatic loading and unloading of layshaft cluster gear blanks to Maxicut type 2C gear shaper 857
Automatic loading and unloading unit on Mikromat thread grinder 303
Automatic machine, Billeter cam-operated, for engraving and contour-milling operations 435
Automatic machining methods for producing cash-register components. Efficient press shop and .. 620, 732
Automatic. Maier & Remshardt type A.60 single-spindle 123
Automatic. Manurhin type PF 60B single-spindle, Set-up on 695
Automatic marking unit. Lectroetch .. 1201
Automatic melting furnace. New Monometer 330
Automatic. Monforts type NA 300 tape-controlled single-spindle chucking .. 1160
Automatic operation of capstan lathes, Demonstration of Nickols equipment for, by means of air cylinders .. 1198
Automatic paint spraying unit. "Automatic Equipment" type CM 600 1155
* Automatic positioning a lathe tool-slide. System for 925
Automatic second-operation lathe. Hydro fully- 865, 1004
Automatic second-operation machine. Special-purpose 627
Automatic and semi-automatic assembly methods for cash-register production 732
Automatic shearing and slitting line .. 1445
Automatic. TOS type AN. 6/40 multi-spindle 208
Automatic transfer honing line for 3-cylinder engine blocks for Wartburg car. Naumburg 308
Automatic tube feeding equipment. Brookes 602
Automatic turret lathe. Jones & Lamson type ATL 4½ by 24 855
Automatic up-setting and forging installation. Hasenclever 477
Automatic welding. Backing bar automation for 685
Automatic welding heads. Advantages of lateral reciprocation of 1152
Automatic welding machine. ESAB .. 628
Automatic writing machine reduces preparation time for quotations .. 1151
Automatics. Developments in 291
Automatics. Pittler Acme-Gridley multi-spindle 644
Automatics. Pittler Pifat single-spindle front chucking 643
Automatics. Set-ups on Warner & Swasey types 1 and 3 AC single-spindle chucking 1195, 1196
Automating assembly operations. The possibilities for 514
Automation, Backing bar, for automatic welding 685
Automation, Ltd.:
High-speed attachment for Lipe bar feed units 132
See also 744
Automation of skilled work 1511
Autoset type N271 tape control equipment. Airmec 573
Aveley Electric, Ltd. 942

PAGE

Avery, W. & T., Ltd.
Large machine for testing coil springs 719
Stiffness compensator for hydraulic testing machines 386
Type 7211 FVB dynamic balancing machine 487
Type 7216 FVA vertical-axis dynamic balancing machine for operations on disc-shaped parts 655
Work support rollers for dynamic balancing machines 688
Axle casings. large vehicle, Set-up on Drummond Maximatic automatic multi-tool lathe for plunge-facing and copy-turning operations on .. 1028
Axle housings, Production of rear, from strip 64, 292, 564
Aylesbury Automation, Ltd.:
Jet-Tron air flow detection unit .. 828

B

B. I. P. plastics presses. Developments in 373
B. P. S. Machinery & Spares Co., Ltd. 114, 199
B. & R. Relays, Ltd.:
Types DO3/P and D53/P plug-in relays 875
B. S. A. Tools, Ltd.:
Magazine bar feed unit for Acme-Gridley 6-spindle automatic 161
Type 95E chucking automatic with numerical sequence control 1024
Type 138L single-spindle automatic 536
Type CD32 tape-controlled drilling machine 100
B. T. G. -Madison duplex roller burnishing tool 50
B. T. G. -Madison Microroller roller burnishing tools 1193
B. T. G. -Madison tooling. Herbert No. 4 Senior turret lathe set up with .. 1083
BTR Industries Reinforced Plastics, Ltd.:
Suction arrangement for glass fibre forming 539
Babcock & Wilcox, Ltd.:
Some examples of equipment installed in the works 1404
Backing bar automation for automatic welding 685
Bader S. 111 drum-type machine for second-operation work 115
Badische Maschinenfabrik A. G.:
Installation of Sandslinger in works of Butterley Co. 388
Baier portable electric metal-cutting saws 603
Baker Perkins, Ltd.:
Experiments with Lamson Empirical Tutors 1550
Balance-milling engine connecting rods. Snyder special machine for 1208
Balancer. MED pneumatic component.. 1164
Balancing, Dynamic, to 0.3 micro oz.-in. 91
Balancing machine. Avery type 7211 FVB dynamic 487
Balancing machine for operations on disc-shaped parts. Avery type 7216 FVA vertical-axis dynamic 655
Balancing machine. Trebel type FV30A vertical single-plane 513
Balancing machines. Work support rollers for dynamic 688
Balding Engineering, Ltd.:
New steplessly-variable speed milling head fitted to No. 2 Beaver machine 589, 776
Baling press for "man-made" fibres. Shaw 1335
Baling press. Weldall scrap-metal hydraulic 1356
Ball transfer stands. Alwayse 245
Ball units. Collis TransVeyor omni-directional 1254
Balls. Bouncing test for universal joint 684
Balls. Delrin and Lexan precision .. 1105
Balls. Distribution curve displayed by means of steel 762
Balls. Micro-miniature precision .. 301
Band saw. Forte Piccolo portable .. 53
Bandsawing and filing machine. Barson-Combinat 1104
Bandsawing machine. Midsaw Delta automatic 207
Bandsawing machine. Midsaw Vari-Hyspeed vertical 125
Bar automatic with counter headstock. Brown & Ward 19
Bar automatic. TOS type AN. 6/40 multi-spindle 208
Bar-chart for a special-purpose machine. A CPA 300
Bar cropping machine. Erfurt type ScPK 315 361
Bar feed unit for B. S. A. multi-spindle automatic. Magazine 161
Bar feed unit for a multi-spindle automatic. Birfeed 46
Bar feed unit for Ward capstan lathes. Mercer air-operated 1042
Bar feed units. High-speed attachment for Lipe 132
Bar straightening and reeling machine. Bronx type PBR 4 112
Barber & Colman, Ltd.:
Hobbing machine for cutting crank-shaft gears 1050
Barer Engineering (G. B.), Ltd. .. 1534
Barlow-Whitney electric oven. Crompton Parkinson stud welding equipment for.. 851
Barnbrook, T. G.:
Crossed taper roller bearings for machine tools.. 885
Barrus, E. P., (Concessionaires), Ltd. 998
Barry Serva-Levl mounts for jig borer 167
Barson-Combinat bandsawing and filing machine 1104
Baskets, Wire, for transportation of components 1165
Baty, J. E., & Co., Ltd.:
Series 700 optical projector 58
Type 680 universal measuring machine 970
Beagle-Auster Aircraft, Ltd.:
Manufacture of motor car components 788
Beakbane, Henry, (Fortox), Ltd.:
Fortox all-terylene slideway cover 208
Beam welding. electron, Some results obtained with 1436
Bearing ball surfaces. Czechoslovak-built inspection machine for 59
Bearing balls in inner race components, Newall-Keighley type BG cylindrical machine for grinding radius tracks for, by shoe centreless method 486, 1263
Bearing balls produced by cold heading. Koehler machine for de-flashing .. 590
Bearing balls. Simple equipment for counting 384
Bearing balls. Suhl sorting machine for small 528
Bearing-clearance measurement. Plastigauge plastics for 1093
Bearing contact angles. Instrument for measuring 1329
Bearing. Gamet pressure oil distributor 52
Bearing housings, Boring, on a turret lathe 1255
* Bearing lubrication system 212
Bearing. New Gamet type P taper roller 54
Bearing races. Van Norman Lectro-Cam radius grinding machine for, Loading arrangement on 376
Bearing raceway grinding machines. East German 305
Bearing rings. Set-up on Gildemeister 8-spindle chucking automatic for machining 321
Bearing rings. Wickman-Scrivener type 18/20 duplex face grinding machine set up for finishing 1083
Bearing roller inspection machine. Suhl 528
Bearing systems. The importance of hydrostatic 3
Bearings, Air, on grinding machines 150, 883
Bearings. air, New Westwind range of grinding units with.. .. .. 650, 725
Bearings, Crossed taper roller, for machine tools 885
Bearings. hydrostatic pivot, Accurate rotation with 140
Bearings, Plastics, for industry .. 974
Bearings. Producing ribbon cages for Pollard standard ball 430
Bearings. Quantity production of motor car fan and water pump spindle .. 1202
Bearings in a Sendzimir cold rolling mill. Hoffmann special-close tolerance roller 425
Bearings for strip rolling mills. Hoffmann 1023
Bearings for wire stranding machines. Large-bore Hoffmann 539
Beaver No. 2 machine. New Balding steplessly-variable speed milling head fitted to 589, 776
Beck & Sohne K. G.:
Television microscope 980
Beetle tractor for welding. Interlas .. 940
Bell Telephone Laboratories:
Aluminium-polythene laminate material 189
Bell, small hand, Set-up on Colchester Chipmaster lathe for turning a, from brass bar 1031
Belling & Lee, Ltd. 717
Belsize Engineering Co., Ltd.:
Fine blanking tools 1383
Bending machine. Minipress type 15 strip 270
Bending machine for motor car window frames. Redman 1191
Bending moment of crankshafts. Fillet rolling to increase fatigue life and .. 862
Bending and straightening machine. Bronx horizontal 1536
Bendix Corporation:
DynaPoint 32 tape control system .. 574
Numerical control agreement with Plessey-UK 226
Bendix Products Aerospace Divn.:
Reliability of numerical control established over a 10-year period .. 1524
Micrometrical Divn.:
Indi-Ron measuring machine 532
Proficorder measuring equipment .. 593
Profilometer for measuring surface roughness 49
Bendmaster hydraulic tube bending machine. Type 62LD Leonard .. 858
Benjamine combined planing and milling machine 812
Benrath Machine Tools, Ltd. 123
Benson Bond Group. Activities of the .. 1389
Bentley 120-ton power press. Samuel Griffiths 21
Bergonzo/Nomo camless single-spindle turret-type automatic 809
Berk, F. W., & Co., Ltd. 1388
Besco-Hydrobend type 50-100 hydraulic press brake 201
Besco-Loadmaster type U open-fronted power presses 118
Bevelling machine, Pullmax X 8 plate, with tube end bevelling attachment .. 78
Biax flexible shaft drive units and power tools 57
Bighead laminate fixing units 581

PAGE

Billeter type 5M-B 3-spindle cam-operated automatic machine for engraving and contour-milling operations 435
Bimax turret-type toolholder for centre lathes 881
Birfield Machine Tools, Ltd.:
Automatic cold sawing machines .. 1039
Birfeed bar feed unit for a multi-spindle automatic 46
Type B automatic-cycle milling machines 868
Birmingham Small Arms Co., Ltd.:
* Angular positioning arrangement for a lathe spindle 656
* Wheel dressing attachment for a centreless grinding machine 656
Birmingham Tool & Gauge Co., Ltd.:
B. T. G. -Madison duplex roller burnishing tool 50
B. T. G. -Madison Microroller roller burnishing tools 1193
B. T. G. -Madison tooling on Herbert No. 4 Senior turret lathe 1083
Bishop, Eaves & Son, Ltd. 742
Blackburns (London), Ltd.:
New warehouse for aluminium .. 554
Blackwell Bearings, Ltd.:
Rollwell roller bearing pillow blocks 262
Blade Handling, Ltd.:
Wire basket for transportation of components 1165
Blanchard type 18C rotary table surface grinding machine with size control 13
Blanking. fine, Examples of components produced by 215
Blanking, fine-, presses. Norfolk range of 163
Blanking. Scrap-free 83
Blanking tools. Belsize fine 1383
Blazek, Ing. Stanislav:
Die casting practice at the Czech Motor-cycle Works, Strakonice .. 323
Board. Sealectoboard programme .. 1442
Bobbins for the textile industry. Die cast 545
Boehringer, Gebr., G. m. b. H.:
Type V800 centre lathe with Heller tape control equipment 1158
Boeing Co.:
Bore inspection unit 264
Use of spaghetti for coring ceramic parts 162
Bohle type FU100/1635 universal milling machine 199
Bohner & Kohle type DR 2 2-spindle rotary table continuous milling machine. 1363
Bolts and nuts. Increased capacity for production of cold-headed 801
Bond Tools, Ltd. 1389
Bonding. Assembling rotors and shafts by 1435
Bonding machine, Omega S. L. 21 ultrasonic, for synthetic fabrics .. 606
Boolean algebra 1418
Bore inspection unit. Boeing 264

Bore-Matic machine, Set-up on a Heald, for precision boring and gun drilling holes in an aluminium component 432
Boremasters of Kenilworth, Ltd.:
The Tiplap tool lapping machine .. 310
Borg-Warner, Ltd.:
Colour-coded lubrication symbols for preventive maintenance 587

Boring bar calculations. Use of computers for 864
Boring bar with Kendex tool holder. Large 1099
Boring bearing housings on a turret lathe 1255
Boring and facing tool heads. Chandler-Duplex 1535

PAGE

Boring and gun drilling holes in an aluminium component. Heald Bore-Matic machine set up for precision 432
Boring, facing and chamfering operations. Ex-Cell-O double-ended machine for 380
Boring, facing and milling machine. New Churchill type HB 4D horizontal 84
Boring head. Andrews radially-adjustable 465
Boring machine, Asquith 8-in, ram-type, in English Electric Works .. 73
Boring machine, Asquith 6-in. spindle floor-type horizontal, with A. E. I. co-ordinate setting equipment .. 531
Boring machine. Krause type FB-60 single-spindle fine 129
Boring machine. Larsson type CL-22 fine 31
Boring machine, Newall double-ended fine 6
Boring machine. Noble & Lund 6-in. spindle floor-type 877
Boring machine with numerical control. Farrel 8-axis horizontal 1411
Boring machine, Set-up on Precimax type FB 115 fine, for gun drilling a hole through a web of a diesel engine connecting rod 972
Boring machines. Bullard Dynamill horizontal 12
Boring mill. Graffenstaden type TVF vertical 916
Boring mill, $\frac{1}{4}$-th scale working model of Japanese vertical, at Olympia .. 434
Boring and milling machine. 16- by 20-in. ram of Asquith 5$\frac{1}{2}$-in. spindle horizontal 698
Boring and milling machine, Large Craven, in English Electric Works 72
Boring and milling machine. Heller type BRH 65 IW tape-controlled .. 1360
Boring and milling machine. Plauert type WH 80 horizontal 25
Boring and milling machines. Control pendants on Asquith 536
Boring and roller-burnishing head. Combined 238
Boring and tapping nuts for pipe fittings. Witzig & Frank multi-spindle machine for 1359
Boring and turning mill at the Babcock & Wilcox works. Richards 1410
Boring and turning mill. Richards BMO 4 1206
Borough Polytechnic prizegiving .. 1281
Bosch, Ltd.:
Hydrostatic transmissions 1051
Bottle-closure sleeves. Producing .. 1098
Bottle mould. Set-up on Dean, Smith & Grace lathe for copy machining the internal form in a 589
Boulton Paul Aircraft, Ltd.:
The Suproform press 508
Bowers, T., & Co. (Toolmakers), Ltd.:
Motor-driven inclinable rotary table 825
Bracket. Die cast magnesium 547
Brake, disc, caliper die castings. Simca 1048
Brake hub component. Churchill-Redman multi-tool lathe set up for operations on a cast iron 652
Brake linings. Sigma semi-automatic air gauging equipment for checking 484
Branzburg, L.:
Design and production with circlips and retaining rings 1180
Brass components for mixing valves. Die casting installation for production of 887
Brèche type BR. 300 thread chasing machine 28
"Bridgeport by Adcock & Shipley" milling machine. First 228

PAGE

Bridgeport milling machine. Linderode spark erosion unit based on a .. 385
Bridgeport 360/3D T-ram milling machine fitted with Man-Au-Trace hydraulic tracing equipment 697
British Association of Machine Tool Merchants:
Annual general meeting 1337

British Electrical and Allied Manufacturers' Association:
Convention on problems associated with numerically-controlled machine tools 179, 223
British Federal Welder & Machine Co., Ltd.:
250-kVA Stronghold spot/projection welder 77
British Industrial Plastics, Ltd.:
Developments in plastics presses .. 373
British Insurance Association:
Film: Suspects All 1456
British Investment Casters' Technical Association:
Film: Invest in a Casting 1172
British Northrop, Ltd.:
Production of Chaseside loading shovels 1068
British Oxygen Co., Ltd.:
Consumable-nozzle electro-slag welding machine 411
Fully-automatic portal beam welding machine 165
British Timken Divn. of the Timken Roller Bearing Co.:
Crossed taper roller bearings for machine tools 885
Brno International Trade Fair. Visit of Mr. Khrushchev to 772
Broach-grinding machine. Klink type RSH 1000 1028
Broaching fir-tree root forms on turbine blades. Lapointe horizontal machine set up for 375

Broaching machine. Ashley vertical .. 226
Broaching splines in bores of gear blanks. Lapointe HP. 10 machine set up for 591
Broadbent-Schofield, Ltd.:
Roll turning lathe with Hepworth copying equipment 933
Type BSX heavy-duty lathe 117
Broken taps and other tools. Marbaix type M65CS disintegrator for removal of 860
Bronx Engineering Co., Ltd.:
Automatic shearing and slitting line 1445
Horizontal bending and straightening machine 1536
Templates of standard tooling for use with press brakes 213
Type PBR 4 bar straightening and reeling machine 112
Brook Motors, Ltd.:
New office block at Empress Works 721

Brookes (Oldbury), Ltd.:
Automatic tube feeding equipment .. 602
Brookhirst Igranic, Ltd.:
Type 906 timing relay 1187
Brookman, R. S., Ltd.:
Machine for drilling cylindrical casings 360

Brooks & Walker, Ltd.:
Taylor adjustable screw thread caliper gauges 131
Broomfield Carbide Gauges, Ltd.:
Wafer slip gauges of tungsten carbide 715
Broomfield Dedtru centreless grinding attachment. Demonstration of .. 856
Browells Partnership, Ltd.:
15-ton electro-hydraulic Speedpress 1102

Brown Bros. (Aircraft), Ltd. 1386

PAGE

Brown, David, Industries, Ltd.:
Co-ordinate positioning table controlled by E.M.I. B100 system .. 533
Jackson Gear Division:
Cupralum tube for acid heating and cooling coils 1497
Brown & Sharpe (U.S.A.) toolmaker's microscope 1032

Brown & Sharpe (U.S.A.) Turr-E-Tape type B turret drilling machine fitted with G.E.C. Mark II control equipment 633
Brown & Ward (Tools), Ltd.:
Bar machine with counter headstock 19

Bruderer 30-ton high-speed press .. 1109
Brush Instruments, Divn. of Clevite Corpn.:
Chisel-edge stylus for Surfindicators 942
Bryant Chucking Grinder Co.:
Centa-Form plunge grinding machine 714

Buck & Hickman, Ltd. 12, 31, 36, 107, 275, 427, 434, 487, 652, 855, 968, 971, 1028, 1030, 1032, 1084, 1192
Buffer storage arrangements for die castings 1549
Buhler 100-ton die casting machine for production of brass components for mixing valves 887
Buhr Economatic 54-station transfer machine. Machining differential carriers on a 246
Building centre lathes on a flow-line basis 152
Building up a worn bearing surface of an axle on a Minarik Journalmaster welding machine 1554
Bullard Dynamill horizontal boring machines 12
Bullard type M Mult-Au-Matic vertical lathes 107
Bulldozers and loaders. Machining track frames for 437
Bumpers. Acme-Efco machine for polishing motor car 1276
Bunker-Ramo Corpn.:
Numerical control equipment for European machines 934
Burdett, G.W.S., & Co., Ltd.:
Type 70 precision surface grinding machine 1100
Burflex, Ltd.:
Tube and bar deburring unit 754

Burgmaster numerically-controlled sliding-head turret drilling machine 1491
Burgmaster type 3 BHT numerically-controlled 8-station turret drilling machine 1462
Burgmaster tape-controlled turret drilling machine at the works of H.M. Hobson 708
Burkhardt Hyop 65 jig borer with Sperry tape control 196
Burnerd, F., & Co., Ltd.:
Multisize collets 691
Burnishing head. Combined boring and roller- 238
Burnishing tool. B.T.G.-Madison duplex roller 50
Burnishing tools. B.T.G. Madison Microroller roller 1193
Burr tape-controlled co-ordinate setting worktable 1363
Burton, Griffiths & Co., Ltd. 13, 146, 1024
Bushes. Prestincert 717
Business machines. Die cast grooved programme drums for 547
Butler Machine Tool Co., Ltd.:
Self-contained milling head for hydraulic openside planing machine 382
Butterley Co., Ltd.:
Installation of Sandslinger 388

C

C. & L. Industries, Ltd. 1389
CPA bar-chart for a special-purpose machine 300
CWB/Innocenti horizontal milling and boring machine at Cammell Laird Works. Large 371
Cabinets. Hahn & Kolb No. 4230 tool storage 63
Cable reels for crane superstructure. Ellison 225
Cadet 50 lathe. Sculfort 918
Cages for Pollard standard ball bearings. Producing ribbon 420
Caledonian Grinding Machine Tool Co., Ltd.:
Chamfer grinding machines 1165
Calor Gas (Distributing) Co., Ltd.:
Film: Loads of Power 1455
Caludon Engineering Co., Ltd.:
Heterospeed variable-speed unit .. 716
Cam, Office-machine, cold-formed on Maypres machine 1328
Cam-operated automatic machine for engraving and contour-milling operations. Billeter 435
Cams. 3-dimensional, Special numerically-controlled machine for the production of 1524
Camera levers produced on Maypres machine 1326
Cammell Laird & Co. (Shipbuilders & Engineers), Ltd.:
Installation of large Innocenti horizontal milling and boring machine 371
Camshaft accelerator. B.S.A. type 138L automatic incorporating .. 535
Camshaft grinder. Schaudt type ACM automatic 16
Camshafts for Ford engines, Machining, at the Lima factory 1348
Canning, W., & Co., Ltd.:
Cylinder copper-plating plant for Hungary 1002
Carbide blades used for shearing tinplate 768
Carbide press tools, Machinable steel-bonded, - some design considerations 582
Carbide support member for an internal thread milling cutter .. 1321
Carbon dioxide welding of perimeter type motor car chassis. Automatic 1476
Carbon-manganese steel. Phoenix CM-70 1445
Carbon rings and packings for non-lubricated gas compressors 927
Carborundum Co., Ltd.:
Micro-Copiform diamond forming blocks for production of profiles on grinding wheel peripheries 745

Carlton numerically-controlled horizontal drilling and boring machine .. 1462
Cartridge tooling. Demonstration of R.B. 743
Cartridge tooling. Wickman Wimet .. 145
Cartridge-type holders for throw-away carbide tips. Galtona 857
Cash-register components. Efficient press-shop and automatic machining methods for producing 620
Cash-register production. Automatic and semi-automatic assembly methods for 732
Cast iron brake hub component. Churchill-Redman multi-tool lathe set up for operations on 652
Cast iron clutch sleeve. Set-up on Warner & Swasey 1 AC chucking automatic for machining a 1196

Cast iron for cyrogenic applications .. 1049
Cast iron flywheels. Set-up on No. 10 Verticalauto for machining 537

Cast iron plates. Set-up on Jameson bridge-type tape-controlled co-ordinate positioning machine for drilling holes in 830
Casting alloy. New nickel high-temperature 794
Casting cleaner. Sinex vibratory .. 808
Casting cleaning and de-coring plants at Cincinnati Tamworth foundry. Pneulec Hydro-Blast 1529
Casting machine, New Concast type S continuous, for heavy steel slabs .. 1146

Casting in SG iron. Large cross-rail .. 1414
Castings. machine tool, New Cincinnati foundry at Tamworth for producing 769, 1529
Castings, Machining large, on Diatrol II Jigmil 804
Castings. Use of Meehanite for machine tool 442
Castings. Very large nickel steel .. 1302
Catalysts. Uranium available for .. 528
Catmur Machine Tool Corporation, Ltd. 32, 109, 376, 697
Cats-Neparofa, Ltd.:
New packaging laminate 436
Cavitron Ultrasonic, Inc.:
* A vibrator driving-unit for very small cutting tools 924
Cementation (Muffelite), Ltd.:
Barry Serva-Levl mounts for jig borer 107
Centa-Form external plunge-form grinding machine. Bryant 714
Centec Machine Tools, Ltd.:
Type 3R horizontal machine for milling grooves in two workpieces at a time 274
Centre of Electro Machining Technology. Spercatron 828

Centreless, shoe, method. Newall Keighley type BG machine for grinding radius tracks in bearing races by the 486, 1263
Centring machine. Hey double-ended No. 3 automatic facing and 1001
Centurion face milling cutters. New Edibrac 80
Ceramic cutting tools - where can they be used today? 900
Ceramic parts. Use of spaghetti for coring 162
Chamfer grinding machines. Caledonian 1165
Chamfer-milling machine. Christen type HKF hand-operated 369
Chamfering and deburring machine. Vaughan hole 273
Chamfering machine. Cross type 85 automatic gear tooth deburring and 1332
Chamfering machine. Marbaix starter ring gear tooth 1432
Chandler-Duplex boring and facing tool heads 1535
Chappuis PAU 4 by 40 horizontal transfer press. Producing ribbon cages for Pollard standard ball bearings on a 420
Chart, A CPA bar-, for a special-purpose machine 300
Chart. Robertson contract progress .. 490
Chase, Herbert:
Fillet rolling to increase fatigue life and bending moment of crankshafts 962
Chaseside loading shovels. Production of 1068
Chatter behaviour in Adcock & Shipley milling machines. Direct comparison of 337
Chatteris continuous degreasing installation 1075
Checking blade forms. Special fixture employed with a Shadomaster optical projector for 335
Checking brake linings. Sigma semi-automatic air gauging equipment for 484

PAGE

Chemicals. "G.C. Electronics" Spra Koat 1162
Cheshire Highway Utilities, Ltd.: Tube flaring machine 666
Chesterman-Sogenique electronic height gauge 761
Chicago-Latrobe 1-in. diameter drill 275
Chicago Speedibender hydraulic press brake 128, 538
Chipmaster centre lathe set up for turning a small hand bell from brass bar. Colchester 1031
Christen & Co., Ltd.: Type TNL-60 double-ended facing and centring machine 18
Type HKF hand-operated chamfer-milling machines 269
Chromalloy Corpn.: Ferro-Tic cemented carbide press tools - some design considerations 582
Ferro-Tic C steel-bonded carbide for tools for impact extruding a copper part 222
Chrysler Corporation: Aluminium supplied in the molten condition 1086
Bouncing test for universal joint balls 684
Cycleweld DC-2418 drawing compound 419
Production of rear axle housings from strip .. .. .. .64, 292, 564
Tin in cast iron 168
Chuck. Crawford Plastraulic collet .. 55
Chuck. Demonstration set-up to show repeatable accuracy of Pratt-Woodworth diaphragm type gear .. 594
Chuck. Jacobs type 92 lever-operated collet 935
Chuck, Pratt 10-ton, for holding radio-active rod assemblies during maintenance 491
* Chuck. Quick-change 658
Chuck. Reliance keyless drill 269
Chucks. Abwood vacuum 51, 748
Chucks. Taylor independent 4-jaw .. 145
Chucking automatic, B.S.A. type 95E, with numerical sequence control .. 1024
Chucking automatic. New Churchill type CA9-10 all-hydraulic single-spindle 84
Chucking automatic. Herbert No. 2 Programauto programme-controlled 481
Chucking automatic. Monforts type NA 300 single-spindle tape-controlled 1160
Chucking automatics. Pittler Pifat single-spindle front 643
Chucking automatics. Set-ups on Warner & Swasey types 1 and 3 AC 1195, 1196
Chucking equipment. Pratt high/low pressure 146
Chucking lathe. Pittler Pinumat tape-controlled automatic 1159
Chucking machine. Demonstration set-up on Hardinge type HCT precision 743
Churchill, Charles, & Co., Ltd.: New horizontal borer and single-spindle chucking automatic 84
See also.. .. .. .. 479, 483, 575, 652
Churchill-Denhams, Ltd.: SR 10V range of centre lathes .. 601
Churchill Gear Machines, Ltd.: Type U.2415 24-in universal hobbing machine set up for cutting flywheel starter gears.. 428
Churchill-Redman, Ltd.: Building machine tools 251
Type E.C. 230 facing and centring machine.. 195
Type P5 20 by 20 multi-tool lathe set up for operations on cast iron brake hub component 652

PAGE

Ciba (A.R.L.), Ltd.: Araldite dies for explosive forming 1095
Cincinnati Milling Machines, Ltd.: 315-16 type LL vertical milling machine with plug-board control .. 43
New machine tool foundry at Tamworth 769, 1529
See also.. 575
Cincinnati Milling Machine Co., U.S.A.: Acramatic Hundred tape control systems.. 375
* Quick-change chuck 658
Cincinnati (U.S.A.) Spiropoint twist drill grinding machine 1465
Circlips and retaining rings. Design and production with 1180
Circular dividing machine. Dresden high-accuracy 523, 668
Clamp. Power Jacks swing 923
Clamp. Repz embracing 1273
Clare Collets, Ltd.: New tungsten-carbide tipped cutters 50
Clarifier. "Machine Shop Equipment" coolant 744
Clark Equipment Co. 180
Clayton Dewandre Co., Ltd.: Conveyor incorporating nylon fixtures for assembling air compressors 912
Cleaner. Efco 3630 alkaline .. 867, 1131
Cleaner. Hypressure Jenny steam .. 742
Cleaner. Sinex vibratory casting .. 805
Cleaning cloths. Perfex 1321
Cleaning cylinder head castings, pump bodies and other parts. Automatic rotary vibrator shake-out machine for 1278
Cleaning plant. Hall automatic ultrasonic 167
Cleaning unit. Handyman transportable pressure 998
Cleveland, Ajax, No. 3 universal milling machine 110
Cleveland Plant & Machinery Co., Ltd. 1533
Clevite Corporation 942
Clifton & Baird, Ltd.: High-speed face milling unit 654
Clipping press. Wilkins & Mitchell 75-ton 198, 609
Clock components. Use of Du Pont Delrin acetal resin for 919
Cloths. Perfex cleaning and Keywipes wiping 1321
Clutch housing, Combined gearbox and, die casting 1043
Clutch sleeve. Set-up on Warner & Swasey 1 AC chucking automatic for machining cast iron 1196
Clutches. Z.F. magnetic 859
Co-ordinate positioning drilling machine. Set-up on Jameson bridge-type tape-controlled 530
Co-ordinate positioning system. Ferranti 2-axis 632
Co-ordinate positioning table. Aciera production drilling machine with .. 27
Co-ordinate positioning table, David Brown, incorporating E.M.I. system on Asquith radial drilling machine.. 532
Co-ordinate setting equipment. Asquith 6-in. spindle floor-type horizontal boring machine with A.E.I. 531
Co-ordinate setting system. AEI digital 572
Co-ordinate setting table for drilling machines. Alzmetall 1534
Co-ordinate setting worktable. Burr tape-controlled 1363
Coating. Nutracote plastics 1253
Cobalt expanded metal. Pure 264
Coborn Engng. Co., Ltd.: Dynamic balancing to 0.3 micro oz.-in. 91
Cogan, R.M.: Hydrodynamic forming 1147

PAGE

Cohen, George, Machinery, Ltd. 34, 59, 114, 1356
Coil feed and coil handling equipment. Heeley 267
Coil slitting machine. Weybridge 42-in. 114
Coils. The Paton Hawksley Micro-deviometer for measuring and recording ultra-fine pitch 1376
Colchester Lathe Co., Ltd.: Building centre lathes on a flow-line basis 152
Chipmaster centre lathe set up for turning small hand bell from brass bar 1031
The 50,000th Colchester lathe .. 441
Cold-bending pipes. Babcock & Wilcox machine for 1407
Cold-extrusion press. Erfurt type PKnAF 630 362
Cold-extrusion and sheet metal working machines. East German developments in 361
Cold-extrusion press. U.S.I. horizontal 1130
Cold-forming on Maypres machines. Examples of 1322
Cold-headed bolts and nuts. Increased capacity for production of 801
Cold-heading machine. Hanrez high-speed double-blow 744
Cold heading machine. Salvi type TM high-speed 1534
Cold-sawing machine. Birfield automatic 1039
Cold-sawing machine. Noble & Lund 22-in. automated type C 118
Cold-sawing machine. Russell RS 20 .. 106
Collet chuck. Crawford Plastraulic .. 55
Collet chuck. Jacobs type 92 lever-operated 935
Collets. Burnerd Multisize 691
Collis, J., & Sons, Ltd.: TransVeyor omni-directional ball units 1254
Cololite, Ltd.: Uranium available for catalysts .. 528
Colour-coded lubrication symbols for preventive maintenance. Borg-Warner 587
Colt Ventilation & Heating, Ltd.: New factory 90
Combinat, Barson-, bandsawing and filing machine 1104
Commander multi-spindle drilling attachment and tapping units. Machine fitted with Grimston drilling heads and 689
Communist machine tool industries .. 1091
Compagnie des Ateliers et Forges de la Loire 1146
Compagnie Européene d'Automatisme Electronique 934
Compagnie Generale du Duralumin et du Cuivre: Installation of Fielding & Platt stretching machine for aluminium plate 220
Comparator. Interapid dial-indicator internal 206
Comparator. Massi air-operated surface-finish 525
Comparator stand. Helec O.B. 460
Comparator. TMC type 2A portable battery-operated transistorized electronic 1448
Comparator. Zeiss induction-type .. 707
Compressed air supplies filter. Deltech 887, 1275
Compressor. Atlas Copco type DE42 air 1080
Compressors. Carbon rings and packings for non-lubricated gas .. 927
Compressors. Conveyor incorporating nylon fixtures for assembling Clayton Dewandre air 912
Computer. The advent of the training.. 1416
Computer applied to axial-flow fan design calculations 874

PAGE

Computer control for a rolling mill .. 985
Computer, Director control tape preparation by 352
Computer. New Honeywell type 200 .. 219
Computers, Use of, for boring bar calculations 864
"Computerized" torque control facilitates delicate machining operations .. 1076
Concast A.G.:
New type S continuous casting machine for heavy steel slabs .. 1146
Concord airliner components. Ferranti-controlled machines for operations on 370
Concrete. prestressed, Large pressure vessels in 587
Conference. The Fifth Machine Tool Design and Research .. 883, 992, 1256
Conference on press working of sheet metal 81, 213
Conkling, W.H.:
Numerically-controlled measuring machine facilitates complex inspection 909
Connecting rods. Snyder special machine for balance-milling engine 1208
Conomatic type T.V. 6-spindle automatic. In-feed slides on the .. 479
Constructors, Ltd.:
Adjustable pallet racks 751
Contactor for high-speed counting devices. New.. 713
Contactors. Allen West UAC unit .. 607
Continuous casting machine for heavy steel slabs. New Concast type S .. 1146
Contour-milling operations. engraving and, Billeter cam-operated automatic machine for 435
Contourmatic 3-dimensional milling machine set up for producing wind tunnel scale model. H.P.E. 333
Control, Computer, for a rolling mill 985
Control of cutter load. Delicate machining operations facilitated by 1076
Control equipment, Automatic, on Jones & Shipman Hydrosine machines 650
Control equipment, Numerical, for European machines. Bunker-Ramo 934
Control equipment, Plug-board, on Heycomat 2-1,000 Cyclomatic hydraulic copy-turning lathe 969
Control equipment, Ramstaetter, for automatic control of Graffenstaden vertical boring mill 917
Control equipment, tape, for machine tools. A survey of currently available 572, 632
Control. Ferranti continuous-path numerical, Cramic router fitted with 370
Control of flame-cutter from optical projection system 1520
Control. Heller tape, ... 1158, 1160
Control. magnetic tape, Huron-Ferranti 3-dimensional milling machine with 334
Control. numerical, 8-axis horizontal boring machine with 1411
Control, Numerical, agreement between Plessey-UK and Bendix 226
Control, numerical, Equipment with, for machining printing press components 1460
Control. numerical, Ernault-Somua Pilote type S lathe with 806
Control, numerical, of flame cutting. Essi-Kongsberg continuous programme generator for 348
Control. numerical, Important savings obtained with 474
Control, numerical, Measuring machine with, facilitates complex inspection 909
Control, numerical, Reliability of, established over a 10-year period .. 1524
Control. numerical, Report of the study convention on machine tools with 179, 223

PAGE

Control. numerical sequence, B.S.A. type 95E chucking automatic with .. 1024
Control, Numerical, for turning operations 955
Control, numerical. Vernet-Promat equipment for punching holes in steel angle section and cropping section to length under 919
Control panel, Sequence, employed with Nickols system of air operation of capstan lathes 1084
Control panels for G.E.C. tape control systems 634, 636
Control panels. Siemens-Schuckert machine tool 54
Control pendants on Asquith boring and milling machines 536
Control. plug-board, Cincinnati 315-16 type LL vertical milling machine with 43
Control. programme, Application of Heid copy-turning lathes with L.I. 412
Control. programme, Herbert No. 4 Flashcap lathe with 7
Control. programme, Herbert No. 2 Programauto chucking automatic with 481
Control. programme, "Rigid" type VS-25 vertical milling machine with 105
Control. programme, Workmaster turret-head machines for multiple operations under 739
Control. punched-tape, Ernault-Somua type CNZ 3 vertical milling machine with 913
Control. punched-tape, Heid type DZKR 630 production copying lathe with 1161
Control system. Electronic press .. 626
Control system. Plessey Mark 2 8-channel tape, Huller Hubomat drilling and boring machine fitted with 376
Control system, Telematic 2 programme, on Cincinnati milling machine.. 43
Control systems. EMI Emicon B100, B100-L and C1010 581
Control systems. Staveley-Smith equipment for producing punched tapes for use with numerical 718
Control. tape, B.S.A. type CD32 drilling machine with 100
Control, tape, Burgmaster turret drilling machine with, at the works of H.M. Hobson 708
Control. tape, Burkhardt Hyop 65 jig borer with Sperry 196
Control. tape, Burr co-ordinate setting worktable with 1363
Control. tape, Giddings & Lewis Numerimite drilling machine with .. 108
Control. tape, Heller type BRH 65 IW horizontal boring and milling machine with 1360
Control. tape, Hillyer machines with .. 829
Control. tape, Kearney & Trecker-C.V.A. type 3LP vertical milling machine with Ferranti 14
Control. tape, Monforts type NA 300 single-spindle chucking automatic with 1160
Control. tape, Pittler Pinumat automatic chucking lathe with .. 1159
Control. tape, Pratt & Whitney type C Tape-O-Matic drilling machine with 487
Control. tape, Richmond turret-type drilling machine with 990
Control. tape, "Rigid" KAB 50 N bed-type die-sinker with Ferranti .. 197
Control. tape, Set-up on Jameson bridge-type co-ordinate positioning drilling machine with 530
Control. tape, Sliding-head drilling machine with 1491
Control. tape, Spot welding machine with 242

PAGE

Control. tape, Town Woodhouse Town-tape drilling machine with 700
Control. tape, Werner type FV3D turret milling machine with 1102
Control tapes for machine tools. Ultra Tronictyper for preparation of 419
Control tapes for numerically-controlled machine tools. Ferranti plans in connection with the production of .. 439
Control tapes. Preparation by computer of director 352
Control units, Eltropilot, on Max Muller type MDW lathe 1157
Controller. Perret 18-channel drum-type cycle 1107
Controller. Telemecanique XD 2 joystick 981
Conveyor incorporating fixtures made from nylon sheet and rod 912
Conveyor, Indexing, for automatically loading and unloading layshaft cluster gears to Drummond Maxicut 2C gear shaper 857
Conveyor rollers. Polytube covering for 964
Conveyor system, Hydrostatic, for assembling lathes 152
Conveyor system used for storage of die castings 1549
Coolant clarifier. "Machine Shop Equipment" 744
Coolant feed unit. Deublin 275
Copeland Bros., Ltd.:
Flat form tools 1383
Copelmet SM electrode material for spark machining 1255
Copiograph lettering equipment. Italian-made 597
Copper Development Association:
Copper alloy for glass moulds .. 212
Copper part. Ferro-Tic C tools for impact extruding a.. 222
Copper-plating plant for Hungary. Canning cylinder 1002
Copper rolling mill. Sendzimir 1320
Copper, Sprayed-, electrodes for spark machining 1033
Copy milling equipment. Hepworth selective 315
Copy-milling unit. Prototype of new Hayes 360-deg. fully-automatic profile 483
Copy-turning attachment and camshaft accelerator on B.S.A. type 138L automatic 535
Copy-turning equipment, Hepworth automatic 360-deg. hydraulic, on Craven profiling roll turning lathe .. 534
Copy-turning lathe. Plug-board automatic-cycle equipment on Heyligenstaedt 2-1,000 hydraulic .. 960
Copy-turning lathes. Application of Heid programme-controlled and .. 412
Copy-turning motor car components on a Dubied lathe 789
Copying equipment. Ecomil-Nova, Droop & Rein profile milling machine incorporating.. 1474
Copying equipment. Hepworth-Honeywell agreement on Versa-Trace 1488
Copying equipment, Prototype automatic re-cycling profile, mounted on D.S. & G. lathe 530
Copying equipment for a roll turning lathe. Hepworth 933
Copying lathe. Heid type DZKR 630 punched-tape-controlled production 1161
Copying lathe. Progres-Jones & Lamson type EFA automatic-cycle 38
Copying lathe, Progres-Jones & Lamson automatic hydraulic, set up for turning a shaft from a forging of En. 353 steel 434
Copying lathe, Set-up on Maxipilot hydraulic, for turning outside of large layshaft cluster gear forging.. 971

PAGE

Copying machine for machining model propeller blades in NPL Ship Division. Hydraulic 76
Corfield, Reginald, Ltd.: Forming operations on thin sheet materials 1096
Coring ceramic parts. Use of spaghetti for 162
Corrosion and Metal Finishing Exhibition 1502
Cost saving by diamond recovery .. 1217
Coulter diamond powder particle size analyser 1313
Coulthard, Wm., & Co., Ltd.: Manzel Lubricator Division: Piston-meter flow indicator 601
Counter. Decca Mastercount photo-electric 1166
Counterbalancing equipment for workpieces. MED 1164
Counting balls. Simple equipment for .. 384
Counting devices. New contactor for high-speed 713
Counting equipment. "English Numbering Machines" multiple 709
Courses for diamond tool users. Short 1311
Courtaulds Engineering, Ltd.: A CPA bar-chart for a special-purpose machine 300
Coventry Gauge & Tool Co., Ltd.: Matrix type 68 fully-automatic tap grinding machine 9
Matrix type TF 712 plunge form grinding machine 104
View in new demonstration bay .. 1053
Covering for conveyor rollers. Polytube 964
Covers in plastics. Lynester standard machine 1230
Cramic Engineering Co., Ltd.: Ferranti-controlled routing machine for operations on Concord airliner components 370
Crane. "Handling Systems" mobile .. 713
Crankshaft castings, Production of, by shell moulding 965
Crankshaft gears, Cutting, on a Barber-Colman hobbing machine .. 1050
Crankshafts. Fillet rolling to increase fatigue life and bending moment of .. 862
Crankshafts, Machining. on Heid copy-turning lathes 415
Craven Bros. (Manchester), Ltd.: 17-in. centre profiling roll turning lathe 103, 534
Heavy-duty roll grinding machine .. 11
Large horizontal boring and milling machine in English Electric Works 72
Crawford Collets, Ltd.: Plastraulic collet chuck 55
Creep testing machine with controlled atmosphere chamber. Denison T48 1167
Cri-Dan Viscam semi-automatic threading machine 33
Crimping tool. Plessey bench-type UNIcrimp 773
Critical path analysis. An application of 1440
Critical path analysis bar-chart for a special-purpose machine 300
Crompton Parkinson, Ltd.: Crompton Parkinson-Albert Mann FS range of variable-speed motors 62
Crompton Parkinson (Stud Welding), Ltd.: Demonstration of stud-welding with Cycatron capacitance discharge equipment 214
Stud welding equipment 851
Cropping machine. Erfurt type ScPK 315 bar 361
Cropping section to length. Vernet-Promat equipment for punching holes in steel angle section and .. 919
Crosland, William, Ltd. 1357
Cross Company: Type 85 automatic gear tooth deburring and chamfering machine.. 1332

PAGE

Cross International A.G. 1333
Cross Manufacturing Co. (1938), Ltd.: Piston for use with aluminium cylinder blocks without liners .. 1318
Cross-rail casting in SG iron. Large .. 1414
Cross-rail construction. New 992
Cube of manganese bronze. Set-up on Kummer lathe for producing an "Atomium 64" component from a .. 431
Cupralum tube for acid heating and cooling coils 1497
Cut-off wheel. Swedish-made. Hakansson 1243
Cutanit Compact Junior throw-away tip type face-milling cutters. Demonstration of 698
Cutter grinding machine. Rank Taylor Hobson 1414
Cutter load. Delicate machining operations facilitated by the control of .. 1076
Cutters. New Clare tungsten-carbide tipped 50
Cutters and throw-away tip tool-holders. Protolite Futurmill 132
Cutting and hydraulic fluids. New Mobil 147
Cutting-off machine. Taylor type 1680 113
Cutting-off machine for tubing. Vogel 2000 automatic 1536
Cutting off waveguide tubing. Improved method of 190
Cutting very large segmental gears in an Italian shop 1314
Cycatron capacitance discharge type equipment. Demonstration of stud welding with 214
Cycle controller. Perret 18-channel drum-type 1107
Cycleweld DC-2418 drawing compound 419
Cyclomatic hydraulic copy-turning lathe. Plug-board automatic-cycle equipment on Heyligenstaedt 969
Cylinder, air, performance. PERA investigations into 1055
Cylinder block die castings for the Skoda 1000 MB car. Aluminium alloy 1266
Cylinder blocks for Wartburg car. Automatic line for honing operations on 308
Cylinder blocks without liners. Piston for use with aluminium .. 1318
Cylinder head die casting. Simca water-cooled 1046
Cylinder liner. cast iron, Menziken vertical machine set up for surfacing, copy turning, boring and parting-off operations on a 375
Cylinders. Eland HD 1-in. bore hydraulic 1382
Cylinders. Steel tubes for hydraulic .. 1469
Cylinders. Vickers Sperry Rand Slim Line hydraulic 46
Cylindrical casings. Machine for drilling 360
Cyrogenic applications. Cast iron for .. 1049
Czech-built type VKK3 inspection machine for bearing ball surfaces .. 59
Czech-built Plauert type WH 80 horizontal boring and milling machine 25
Czech-built type FB 32 U universal milling machine 40
Czech Motor-cycle Works, Strakonice. Die casting practice at the 323
Czechoslovakia. Building electric railway locomotives in 236
Czechoslovakia. Machine tool research in 1384

D

Daisy blind rivets 1386
Dalic plating process 1144
Damage, Reducing water, associated with fires 374

PAGE

* Damping unit. Hydraulic 657
Danfoss Orbit Torque Generator .. 996
Daniels Parkson, Ltd.: High-speed continuous evaporator for concentrating chemicals and other products 492
Danly equipment for loading and unloading workpieces on automated press lines 427
Data processing system. Ferranti Profiledata 687
Datran, Ltd.: Histogramplotter 762
Davis, A.G., Gage & Engineering Co.: Hole location gauge made by Thos. Mercer 48
Davis, Stuart, Ltd.: New machine tool showroom 722
See also 20, 420, 829, 1475
Davy and United Engineering Company, Ltd.: Long length gauges of Nilo alloy 36 1415
Dawe Instruments, Ltd.: Type 1502 digital torquemeter .. 875
De-coiling and levelling unit. High-speed 845
De-coring and cleaning castings, Pneulec Hydro-Blast installations for, at Cincinnati foundry 1529
De-flashing machine for bearing balls produced by cold heading. Koehler .. 590
De Normanville overdrive. New .. 870, 1393
De Voss, Edwin A.: Delicate machining operations facilitated by control of cutter load 1076
Dean, Smith & Grace, Ltd.: Slide of prototype automatic re-cycling copying equipment mounted on saddle of type 1810 lathe 539
Type 21 SB lathe set up for copy machining the internal form in bottle mould 589
Deburring, blending and general finishing operations. Morrisflex type MD 706 abrasive band machine for 603
Deburring and chamfering machine. Cross type 85 automatic gear tooth 1332
Deburring ends of bores of small tubes. Renault special machine for automatically 813
Deburring equipment for tubes and bars 754
Deburring machine. Vaughan hole chamfering and 273
Deburring operations. drilling and, Special machine incorporating Desoutter automatic feed drills for 861
Deburring. Use of Airbrasive tool for 438
Deburring, Vibratory, to improve product reliability 758
Decca Radar, Ltd.: Mastercount photo-electric counter 1166
Decomat automatic lathe. Manurhin .. 1303
Dedtru centreless grinding attachment. Demonstration of Broomfield 856
Deep-drawn components produced by the Jewelform process 217
Deep hole drilling machine. Set-up on Nagel type SB21 1192
Deforming metal against back pressure 507
Degenhardt & Co., Ltd. 591
Degreasing installation. Chatteris continuous 1075
Degussa Wolfgang A.G.: Electron-beam furnace installed in Murex works 876
Delaney Gallay, Ltd.: Vibrashock No. D 208 mounting pad 867
Delicate machining operations facilitated by control of cutter load 1076
Delrin acetal resin for clock components. Use of Dupont 919
Delrin and Lexan precision balls .. 1105
Delta automatic bandsawing machine. Midsaw 207

PAGE

Deltech filter for compressed air supplies 887, 1275
Deltronic Corpn.:
Gauge inspection in micro-inches .. 356
Demonstration of machine tools and equipment by Gordon Try 1446
Demonstration of sheet-metal working machines 1108
Denison Deri, Ltd. Private exhibition by 1390
Denison, Saml., & Sons, Ltd.:
T48 creep testing machine with controlled atmosphere chamber .. 1167
Department of Scientific and Industrial Research:
Film: Precise Measurement in Engineering 1503
Deposition of aluminium on to steel strip. Electrophoretic 1482
Design and production with circlips and retaining rings.. 1180
Desoutter Bros., Ltd.:
Automatic feed drills incorporated in special machine for drilling and deburring operations 861
Detection unit. Jet-Tron air flow .. 828
Detector, Ferrous particle, for gearboxes 521
Deublin coolant feed unit 275
Deutschland type DRH II 110K railway wheel lathe. Set-up on 319
Devcon, Ltd.:
Form Pack sealing material 1318
DeVlieg Machine Co.:
Diatrol II Jigmil set up for machining a large casting 804
Heavy machining on a Jigmil 358
Milling test on Jigmil 162
Type 4H 96 Jigmil fitted with Plessey Mark II tape control equipment .. 638
Use of computers for boring bar calculations 864
Dex Machine Tools, Ltd. 359, 710
Dexion Group:
Flow rack installation at Atlas Copco for handling of boxes of drill steels 551
Diamond forming blocks for producing profiles on grinding wheel peripheries. Micro-Copiform 745
Diamond powder particle size analyser. Coulter 1313
Diamond recovery. Cost saving by .. 1217
Diamond tool users. Short course for.. 1311
Diamonds. fine turning with, Demonstration on Hardinge type DV 59 lathe of 699
Diamonds. Man-made.. 1088
Diatrol II Jigmil. Machining large castings on 804
Diavite Microtester 699
Dicksons (Engineering), Ltd.:
Quick-change pre-set tooling for lathes 604
Die casting activities of Fonderia Ruffini 1542
Die casting with Escofier automatic machines. Gravity.. 815
Die casting foundry. Toolmaking activities in a 1544
Die casting installation for brass .. 887
* Die casting machine with automatic core locking arrangement 211
Die casting machine. IDRA Inclinata 120-ton automatic hot-chamber .. 328
Die casting machines. Developments in "Original Polak" 1264
Die casting machines. The new oil-hydraulic 1270
Die casting machines. Sacomat pressure 821
Die casting of motor car components, Gravity, with mechanized dies .. 1043
Die casting practice at the Czech Motor-cycle Works, Strakonice .. 323
Die casting process. Nelmor vacuum .. 1546

PAGE

Die castings. Some examples of zinc and magnesium 540
Die and mould hobbing operations. 2,000-ton Sack & Kiesselbach hydraulic press used for 722
Die-sinker with Ferranti tape control. "Rigid" KAB 50 N bed-type 197
Die-sinking machine. Some examples of work carried out on the Alexander 982
Die-sinking milling machine. Harrison 1040
Dies for explosive forming. Araldite .. 1095
Dies. mechanized, Gravity die casting of motor car components with .. 1043
Dies. Tufnol drop forging, Typical master patterns for 1336
Dies. Unit die casting.. 1548
Differential carriers. Transfer machining of 246
Differential cases. Set-up on Warner & Swasey 3AC chucking automatic for machining 1196
Digital co-ordinate setting system. AEI 572
Digital display, Rheem, for increasing productivity of used machine tools .. 930
Digital measuring system. Newall No. 2443 jig borer equipped with Ferranti 485
Digital torquemeter. Dawe type 1502 .. 875
Dillinger Huttenwerke, Aktiengesellschaft der:
Installation of new Concast type S continuous casting machine for steel slabs 1146
Discs, Slitting, by flame cutting.. .. 332
Disintegrator for removal of broken taps and other tools. Marbaix type M65CS 860
Disintegrator for removing broken tools and producing holes. "Electro Arc" DB2 146
Distington Engineering Co., Ltd. .. 1146
Distribution curve displayed by means of steel balls 762
Dividing head. Urquhart Microtest .. 1103
Dividing head. New Zeiss optical .. 706
Dividing machines. Dresden linear and circular.. .. .. 522, 668
Dividing and measuring equipment. East German developments in precision 522, 700
Dividing tables. Urquhart Microtest range of rotary 1331
Dividing and tilting table. Hahn & Kolb 31½-in. diameter motorized 377
Dog bars, Use of interchangeable, to permit rapid set-up on milling machines 437
Domini type A 51 gear hobbing machine 1446
Dorman Long (Steel), Ltd.:
New universal plate mill to be equipped with computer control .. 985
Dorman Machinery Sales, Ltd. .. 815, 918, 1043, 1471
"Dough moulding" for an electrical equipment cover 464
Douglas Aircraft Co.:
Milling "waffle" pattern in Saturn tank skin panels 752
Dowding & Doll, Ltd. 28, 105, 197, 375, 917
Dowty Mining Equipment, Ltd.:
A.I. welding installation for pit props 1132
Drawing compound. Cycleweld DC-2418 419
Drawing measuring unit. Ferranti .. 273
Drawn components produced on I.W.K. transfer press 215
Dresden, VEB Feinmess:
Linear and circular dividing machines 522, 668
Dreis & Krump 28-ton Speedibender hydraulic press brake 128, 538
Drill grinding fixture. Eldorado type B gun 1206
Drill housing. hand, Die cast magnesium 547
Drill. Millers Falls type 801 portable 267

PAGE

Drill Service (Horley), Ltd. .. 1041, 1535
Drill stand. Magco magnetic 864
Drill support. Jager magnetic 984
Drills, Desoutter automatic feed, for special machine built by Hertford Precision Engineers, Ltd. 861
Drills, Mohawk sub-land, Demonstration of 743
Drilling attachment. Ward-Riddle gun- 1037
Drilling and boring machine. Carlton numerically-controlled horizontal .. 1462
Drilling and boring machine. G.S.P. type 25 R vertical 808
Drilling and boring machine, Huller Hubomat 8-spindle, set up for machining a cast iron hydraulic valve block 376
Drilling, boring, milling and facing operations, Workmaster turret-head machine for, under programme control 739
Drilling cylindrical casings. Machine for 360
Drilling and deburring operations. Special machine incorporating Desoutter automatic feed drills for 861
Drilling, Demonstration of high-speed, on Maxi-speed Hole Wizard 6-ft. radial machine 275
Drilling and forming machine. Townsend No. 2 37
Drilling head. Hosan 3½-in. stroke unit 1163
Drilling heads, Machine incorporating four Grimston, and Commander multi-spindle drilling attachments .. 689
Drilling holes in an aluminium component. Set-up on Heald Bore-Matic machine for precision boring and gun 432
Drilling holes in frames for electric motors. Higgs special-purpose machine for 390
Drilling machine. Ajax type AJ 150 radial 882
Drilling machine. Aldellverken U 35 production 1446
Drilling machine. Arboga type GM 3508 pillar-type 989
Drilling machine. Arboga type G 1304 1207
Drilling machine. Archdale single-spindle numerically-controlled .. 1462
Drilling machine. Asquith type 6PT 23/96 8-ft. Powerthrust radial .. 693
Drilling machine. Asquith type 3PS 8-ft. radial, with David Brown co-ordinate positioning table 532
Drilling machine. B.S.A. type CD32 tape-controlled 100
Drilling machine, Burgmaster tape-controlled turret, at the works of H.M. Hobson.. 708
Drilling machine with co-ordinate positioning table. Aciera production 27
Drilling machine. Giddings & Lewis Numerimite tape-controlled 108
Drilling machine. Grimston table .. 45
Drilling machine. Healdrill numerically-controlled 1462
Drilling machine. Kerry R. 10 radial .. 991
Drilling machine. Kerry type P radial 195
Drilling machine. Kitchen & Wade type E31 radial 44
Drilling machine. Kitchen & Wade travelling-type twin-head 1330
Drilling machine. Meddings type MB. 10 high-speed bench 203
Drilling machine. Pratt & Whitney type C Tape-O-Matic tape-controlled 487
Drilling machine. Reglus ⅞-in. deep throat bench 1381
Drilling machine. Richmond tape-controlled turret-type 990
Drilling machine. Saalfeld multi-spindle, Fixture built up from standard units and special bush plates mounted on 318

PAGE

Drilling machine. Set-up on Jameson bridge-type tape-controlled co-ordinate positioning 530
Drilling machine. Set-up on Nagel type SB21 deep-hole 1192
Drilling machine. Startrite-EFI FR 2 radial 33
Drilling machine. Tape-controlled sliding-head 1490
Drilling machine. Town Woodhouse Towntape tape-controlled 766
Drilling machines. Alzmetall co-ordinate setting table for 1534
Drilling machines. Arboga heavy-duty 937
Drilling machines. Burgmaster numerically-controlled turret 1462, 1491
Drilling machines. Electro-Mechano power-feed attachment for 1041
Drilling machines. Kitchen & Wade hydraulic-feed multi-spindle 763
Drilling, tapping, boring and reaming equipment. Zagar-Dex gearless multi-spindle 710
Drilling and tapping heads. Snow unit .. 1537
Drilling and tapping holes in barrel components for fuel pumps. Fixtures and work-indexing arrangement on Mulhead rotary-table machine for .. 433
Drilling and tapping machine. Fendt type GB1 heavy-duty multi-spindle .. 20
Drive with electronic speed control. P.I.V. 1166
Drive, Link-Belt P.I.V., for a flying shear 1490
Drive, Machine tool, refinements .. 675
Drive, servo-, system. Rig employed to demonstrate speed control performance of Pegusus electro-hydraulic 318
Drive unit. The Caludon Heterospeed variable-speed 716
Drive units, Biax flexible shaft, and power tools 57
* Driving arrangement for a headstock spindle 925
* Driving unit for very small cutting tools. A vibrator 924
Driving units. Additions to L.D.E.P. Stardrive range of 1000
Droop & Rein type KFA 80 profile milling machine 1474
Drop forging dies. Typical master patterns for Tufnol 1336
Drum-type cycle controller. Perret 18-channel 1107
Drum-type machine for second-operation work. Bader S.111 115
Drums, grooved programme, for business machines. Die cast 547
Drummond-Asquith, Ltd. 9, 101, 111, 118, 129, 209, 319, 381, 531, 532, 536, 588, 592, 650, 693, 695, 696, 698, 806, 857, 860, 913, 971, 1028, 1040, 1195
Drummond Bros., Ltd.:
Hoblique automatic gear hobbing machine set up for cutting gears on commercial vehicle layshaft cluster 588, 592
Maxicut 2C gear shaper, Layshaft cluster gears loaded and unloaded to, from hydraulically-operated indexing conveyor 857
Maximatic automatic multi-tool lathe set up for plunge-facing and copy-turning operations on large vehicle axle casings 1028
Maxipilot hydraulic copy-turning lathe set up for turning outside of layshaft cluster gear forging 971
Maxirapid automatic lathe set up for turning and plunge-cutting operations on steel layshaft gear forging .. 650

PAGE

Du Pont Co. (United Kingdom), Ltd.:
Heat-shrinkable tubing of Teflon FEP-fluorocarbon film 871
See also 919, 1522
Du Pont de Nemours, E.I., & Co.:
Delrin acetal resin for clock components 919
Urethane rubber for stripper units for press tools 1522
Dubied, Edouard, & Cie.:
Lathes set up for copy-turning motor car components 789
* System for automatically positioning a lathe tool-slide 926
Dustuctor Co., Ltd.:
Dust extractor for hand grinders .. 757
Dyna Systems, Inc.:
Tornetic torque controls 1076
Dynamic balancing machine. Avery type 7211 FVB 487
Dynamill horizontal boring machines. Bullard 12
DynaPoint 32 tape control equipment. Bendix 574

E

E. A. M. Stop-Cut type E/C2/28 electronic gauge head 369
E. M. G., Meddings-, type SF. 12 tool grinding and lapping machine 125
EMI Electronics, Ltd.:
Emicon B100 control system 578
Emicon C1010 control system .. 581
Emicon B100-L line milling and positioning system 579
E. S. T. (Gauges), Ltd.:
Set-up on Studer grinder for finishing a tungsten carbide coated plug gauge 494
E. W. M. type S6 automatic screw-slotting machine 204
Earth-moving equipment. Production of components for large tractors and 452
East German developments in cold-extrusion and sheet metal working machines 361
East German developments in precision dividing and measuring equipment 522, 700
East German grinding, lapping and honing machines 302
East German Niles type ZSTZ gear grinding machine 127
Ebosa type M34 turning and thread chasing machine 22
Ecomil-Nova copying equipment. Droop & Rein profile milling machine incorporating 1474
Economatic, Buhr, 54-station transfer machine. Machining differential carriers on a 246
Economic stagnation. The cure for .. 1179
Economill. Wickman Wimet 263
Edge-curling of trays 1096
Edge guide. Miniature photo-electric .. 87
Edgemill plate edge milling machine. Hugh Smith 598
Edibrac, Ltd.:
New Centurion oblique face milling cutters 58
Edibrac Hard Metals, Ltd.:
Demonstration of Broomfield Dedtru centreless grinding attachment .. 856
Edwards, F.J., Ltd.:
Besco-Hydrobend type 50-100 hydraulic press brake 201
Besco-Loadmaster type U open-fronted power presses 118
Efco Group. Activities of member companies of the 1274
Efco No. 3630 alkaline cleaner .. 867, 1131

PAGE

Ekco Electronics, Ltd.:
Machine tool control system 576
Eland HD 1-in. bore hydraulic cylinders 1382
Elastomers, Polyvon polyurethane, for metal forming 1553
Elcometer Instruments, Ltd.:
Minitor metal sorter 1244
Eldair No. 2 alligator scrap shears .. 34
Eldorado type B gun-drill grinding fixture 1206
Electric iron sole plate. Die cast .. 325
Electric motors. The AEI Kapak range of 1112
Electric motors. Crompton Parkinson-Albert Mann FS range of variable-speed 62
Electric motors with electro-magnetic brakes. Newman 56
Electrical discharge machine. Elox type HRP-63 19
"Electro Arc" DB2 disintegrator .. 146
Electro-Chemical Engineering Co., Ltd.:
Activities of the company 1274
Deltech compressed air filter 887, 1275
Efco 3630 alkaline cleaner .. 867, 1131
Electro-hydraulic lifting tables .. 234, 550
Electro-hydraulic press brake. Sedgwicks type YH-8 39
Electro-hydraulic Speedpress. Browells 15-ton 1102
Electro-Hydraulics, Ltd.:
Slitting discs by flame cutting .. 332
Electro Machining Technology. Sparactron Centre of 826
Electro-magnetic clutches. Z. F. .. 859
Electro-Mechano power-feed attachment for drilling machines 1041
Electrochemical marking unit. Lectroetch automatic 1201
Electrode material for spark machining. Copelmet SM 1255
Electrodes for spark machining. Sprayed-copper 1033
Electrofeed type 20D turning, facing and screwcutting lathe 4
Electrolytic etching machine. Pryor type EP 70 765
Electrolytic grinder. Wendt type PS. 100E 202
Electrolytic grinding demonstration on Wendt machines 832
Electrolytic grinding machine. Sparcatron-Contelyt 827
Electrolytic tool grinding machine. Hammond type CBE-77 23
Electrolytic tool grinding machine. Kombi-Schliff type EL 600 268
Electron beam equipment. Torvac modular vacuum unit with 991
Electron beam furnace installed in Murex works 876
Electron beam welding operations on large parts 681
Electron beam welding. Some results obtained with 1436
Electronic Autosizing Metrology: Stop-Cut type E/C2/28 electronic gauge head 369
Electronic Chemicals, Ltd. 1162
Electronic gauge head. E.A.M. Stop-Cut type E/C2/28 369
Electronic height gauge. Chesterman-Sogenique 761
Electronic indicator. Pratt & Whitney Opt-O-Limit 1028
Electronic press control system .. 626
Electrophoretic deposition of aluminium on to steel strip 1482
Electropulse, Ltd.:
New contactor for high-speed counting devices 713
Electro-slag welding machine at the Babcock & Wilcox works. Large .. 1408
Electro-slag welding machine. British Oxygen consumable-nozzle 411

PAGE

Electroslag welding machine.
Demonstration of Sovroweld type A.535 3-electrode track-mounted .. 1555
Electro-slag welding machine.
English Electric 74
Electrowriter for transmission of production information 1238
Elgar Machine Tool Co., Ltd.:
Demonstration of electrolytic grinding on Wendt machines 832
See also 123, 127, 196, 202, 204, 208, 435, 880, 1026, 1363, 1474
Elliott Bros. (London), Ltd.:
Tele-Probomat tape control system 577
Ellis, John L.:
Machinable carbide press tools - some design considerations 582
Ellis Optical Co.:
Ellisminor industrial inspection kit 547
Ellison Engng. Co., Ltd.:
Cable reels for crane superstructure 225
Ellvin & Co., Ltd.:
Examples of sheet metal pressings 216
Elox Corporation:
HQP 53 spark erosion machine .. 1210
Type HRP-63 electrical discharge machine 19
Elphal process for coating strip 1482
Eltropilot control units on Max Muller type MDW lathe 1157
Embassy Machine & Tool Co., Ltd. 199, 205, 429, 876, 1535
Emicon B100, B100-L and C1010 machine tool control systems 578
Empirical tutors, Experiments with Lamson, at Baker Perkins, Ltd. .. 1550
Endomatic facing and centring machine set up for operations on cast iron water pump bodies. Giddings & Lewis-Fraser 276
Endomatic 7-stage link line for motor car layshafts 1306
Enfield College of Technology:
The advent of the training computer 1416
Engine blocks. Nagel type 2TS-10-35-1A transfer honing machine for operations on 1198
Engine components. Production of Ford 1236, 1348
Engineering Industries Association London Regional Display 1381
Engineering & Scientific Equipment, Ltd. 1443
English Electric Co., Ltd.:
Description of the Netherton Works 72
Electro-slag welding machine .. 73
English Numbering Machines, Ltd.:
Multiple counting equipment 709
Series 488 statistical analyser .. 666
Engraving and contour-milling operations. Billeter cam-operated automatic machine for 435
Engraving machine. Rank Taylor Hobson type K pantograph 600
Erbu 36 Quickspanner swivelling head bench vice 1381
Erfurt type ScPK 315 bar cropping machine 361
Erfurt type PKnAF 630 cold extrusion press 362
Ericall staff locating system 874
Erichsen type ATECO 530 screw testing unit 908
Ericsson, Telefonaktiebolaget L.M.:
Ericall staff locating system 874
Erie Forge & Steel Corpn.:
Very large nickel steel castings .. 1302
Ernault-Somua, H.:
Type S Pilote lathe with numerical control 806
Type CNZ 3 vertical milling machine with punched tape control 913
ESAB, Ltd.:
Automatic welding machine 628
See also 372, 805

PAGE

ESAB (Sweden):
High-speed equipment for welding small diameter tubes to end plates.. 805
Unit for automatically welding condenser tubes 372
Escofier, Etabs.:
Automatic gravity die casting machines 815
Machines for gravity die casting of motor car components with mechanized dies 1043
Esewey hardness testers, British-built 1443
Essi-Kongsberg continuous programme generator for numerical control of flame cutting 348
Etchells, David, (Machinery), Ltd.:
High-speed shackle-forging plant .. 1258
Etching machine. Pryor type EP 70 electrolytic 765
Evaporator. Daniels Parkson high-speed continuous 492
Evinrude Motors Divn., Outboard Marine Corpn.:
Highly-mechanized shell mould foundry 965
Ewag type RS 2 machine for grinding and lapping convex radii on turning tools and copy-turning stylus points 973
Ex-Cell-O double-ended machine for boring, facing and chamfering operations 380
Ex-Cell-O Group Sales, Ltd. 380, 708, 714, 880, 1491
Exhibitions:
British Exhibition in Peking 1110
Corrosion and Metal Finishing .. 1502
Engineering Industries Association London Display 1381
Hanover Machine Tool 1156, 1359, 1471
International Factory 1163
International Machine Tool, Olympia 4, 46, 100, 130, 133, 194, 273, 315, 375, 427, 477, 479, 513, 530, 588, 650, 689, 714, 743, 855, 868, 878, 880, 968, 987, 1027, 1081, 1192, 1303, 1432
Leipzig Spring Fair 302, 361, 522, 700
Paris Machine Tool .. 806, 821, 913
Welding Engineering 77
Exothermic gas generators.
"United CO_2" 1537
Expanded metal. Pure cobalt 264
Explosive forming. Araldite dies for .. 1095
Exports. British machine tool .. 343, 608, 779, 1061, 1341, 1561
Classified: .. 172, 282, 396, 500, 780, 948, 1116, 1396
Exports. U.S. machine tool 169, 279, 497, 947, 1003, 1174, 1338
Extrusion, cold, and sheet metal working machines. East German developments in 361
Extrusion machine, Experimental impact, incorporating a linear induction motor 995
Extrusion press, cold, Erfurt type PKnAF 630 362
Extrusion press, U.S.I. horizontal cold 1130
Extrusion press, 700-ton vertical, installed at NPL 75
Extruding a copper part. Ferro-Tic C tools for impact 222

F

FBI survey, The latest 1235
Fabbrica Macchine S. Andrea:
Cutting very large segmental gears 1314
Face milling cutters. Platemill 857
Face milling machine. Kitchen & Wade type H 16 horizontal 880

PAGE

Face milling unit. Clifton & Baird .. 654
Face mills. T-MaX negative rake throw-away tip 967
Face shield secured by Velcro fasteners 1042
Facing and centring machine.
Christen type TNL-60 double-ended 18
Facing and centring machine.
Churchill-Redman type E.C.230 .. 195
Facing and centring machine. Hey double-ended No. 3 automatic .. 1031
Facing and centring machine, Set-up on Giddings & Lewis-Fraser, for operations on cast iron water pump bodies 276
Facing machine. Wyvern 4-spindle .. 15
Facing tool heads. Chandler-Duplex boring and 1535
Factory Equipment Exhibition. International 1163
Fairleede Engineering, Ltd.:
Chatteris continuous degreasing plant 1075
Fan design calculations. Computer applied to axial-flow 874
Farrel-Birmingham, Inc.:
Special machines for fillet rolling to increase fatigue life and bending moment of crankshafts 862
Farrel Corporation:
8-axis horizontal boring machine with numerical control 1411
Fast-Draw wire-drawing machine .. 744
Fasteners. Velcro, Face shield secured by 1042
Fastrip protector for motor-driven machines 262
Fatigue life and bending moment of crankshafts. Fillet rolling to increase 862
Fearns Calculators:
Odontograph for accurate presentation of gear tooth shapes 151
Feathertouch height-measuring equipment. MPJ-Sheffield 48
Federation of British Industries survey. The latest 1235
Feed attachment for drilling machines. Electro-Mechano power 1041
Feed system, Strip, for Weingarten transfer press 470
Feed unit, Birfeed bar, for a multi-spindle automatic 46
Feed unit. Humphris Modulink hydraulic gripper 939
Feed unit, Magazine bar, for B.S.A. multi-spindle automatic 161
Feed unit, Mercer air-operated bar, for Ward-capstan lathes.. 1042
Feed units. Lipe bar, High-speed attachment for 132
Feed units for presses. S.P.S. roll .. 1533
Feeders, Vibratory, for mechanized work handling.. 1292
Feeding equipment. Brookes automatic tube 602
Feeding equipment. guillotine, Gera semi-automatic 364
Feeding and handling equipment. Heeley coil 267
Fendt type GB1 heavy-duty multi-spindle drilling and tapping machine 20
Fenner, J.H., & Co., Ltd.:
Hainsworth worm gear reduction units 1415
Ferobestos asbestos-reinforced plastics 404
Feroglas glass-reinforced engineering plastics 407
Feroglas glass-reinforced plastics products made by press moulding techniques. Some examples of .. 461
Ferranti, Ltd.:
2-axis co-ordinate positioning system 632
Bevel gears produced by shell moulding 1222

PAGE

Development plans 439
Digital measuring system on Newall jig borer 485
Drawing measuring unit 273
Inspection and measuring machines 472
Numerical control system for Cramic router 370
Profiledata data processing system 687
Tape control for Rigid KAB 50 N die-sinker 197
Tape control system for Kearney & Trecker-C.V.A. type 3LP vertical milling machine 14
Ferraris Development & Engng. Co., Ltd.:
Reglus ⅝-in. deep throat bench drilling machine 1381
Ferro-Tic C press tools - some design considerations 582
Ferro-Tic C tools for impact extruding a copper part 222
Ferrous particle detector for gearboxes 521
Fielding & Platt, Ltd.:
Fielding 2,000-ton press for forming heated plates into tubes .. 1405
Stretching machine for aluminium plate 220
Filing machine. Barson-Combinat bandsawing and 1104
Fillet-rolling machine. Hegenscheidt super-finishing and 880
Fillet-rolling to increase fatigue life and bending moment of crankshafts 862
Films:
Automotive broaching for the small car (Lapointe) 94, 1557
Helicopter spar broaching (Lapointe) 1557
Invest in a casting (British Investment Casters' Technical Association) 1455
Loads of power (Calor Gas) 1455
Metal versus heat (Hy. Wiggin) .. 890
Precise measurement in engineering (D.S.I.R.) 1503
Precision broaching for production and profit (Lapointe) 1557
Suspects all (British Insurance Assoc.) 1456
The Talyrond (Rank Taylor Hobson) 1503
Texas Tower (Lapointe) 1557
Filter body castings. Die casting die for 542
Filter. Deltech compressed air supplies 887, 1275
Filter/lubricator/drain units. Martonair 372
Filters for cutting fluids. Progressa universal pressure 60
Filtration Service Engineering, Ltd. .. 1328
Fine-Blanking, Ltd.:
Norfolk range of fine-blanking presses 163
Fine-blanking tools. Belsize 1383
Fine-borer. Krause type FB-60 single-spindle 129
Fine-boring machine. Larsson type CL-22 31
Fine-boring machine. Newall double-ended 6
Fine-borer, Set-up on Precimax type FB 115, for gun drilling a hole through a web of a diesel engine connecting rod 972
Fine-turning with diamonds, Demonstration of, on Hardinge type DV 59 high-speed precision lathe 699
Finish, The importance of surface, control 1256
Finishing bearing rings. Wickman-Scrivener type 18/20 face-grinding machine set up for 1083
Finishing the end of a water pump impeller. Microroller roller burnishing tool for 1193
Finishing machine. Hockley type AV1/1 Vibromatic 867

PAGE

Finishing machine. Thos. White type TOP/VW Speedfinisher abrasive belt 1081
Finishing a tungsten carbide coated plug gauge. Set-up on Studer grinder for 494
Finishing. vibratory, Norton Tumblex TJ abrasive material for 1431
Fire Protection Association:
Reducing water damage associated with fires 374
Firth Sterling Inc.:
Wearcarb wear-resistant material.. 1328
Firth-Vickers Stainless Steels, Ltd.:
Automatic bright annealing installation for stainless steel strip 262
Fisher & Ludlow, Ltd.:
Advantages of lateral reciprocation of automatic welding heads 1152
Backing bar automation for automatic welding 685
Fixing units. Bighead laminate 581
Fixture built up from standard units and special bush plates mounted on Saalfeld drilling machine 318
Flame-cutter, Control of, from optical projection system 1520
Flame cutting. Essi-Kongsberg continuous programme generator for numerical control of 348
Flame cutting. Slitting discs by 332
Flame-hardening cam segments for multi-spindle automatics. Pittler machine for 649
Flame profiling machine. Hancock Han-co-sine 265
Flaring machine. Cheshire tube 666
Flashcap lathe with programme control. Herbert No. 4 7
Flatness interferometer. Hilger & Watts 1105
Flaw detector. Ultrasonoscope Mark V ultrasonic 981
Fletcher Miller, Ltd.:
Almasol M.16/62 synthetic soluble oil 281
Flexible shaft drive units and power tools. Biax 57
Flo-Peeling machine. Lodge & Shipley 529, 610
Floor polisher. Unic industrial 823
Floor surface protection. New liquid-plastics treatment which provides .. 314
Floorplates. Set-up for milling operations on Robertson 383
Flow indicator. Manzel piston-meter .. 601
Flow-line basis. Building centre lathes on a 152
Flow rack installation for handling boxes of drill steels. Dexion 551
Flow turning and spinning. Leifeld machine set up for producing hopper components by 429
"Fluid-forming" hydraulically-operated press. Boulton Paul 508
Fluid Power, Ltd.:
Type 2A hydraulic valve 940
Fluids. New Mobil cutting and hydraulic 147
Flume for supply to Ship Hydrodynamics Laboratory 1502
Flute grinders, Hertlein tap-, in the works of Richard Lloyd 1551
Flywheel housing adapter plate. Vertimax No. 3 vertical-spindle production lathe set up for machining 483
Flywheel starter gears. Set-up on Churchill gear hobber for cutting .. 428
Flywheels. No. 10 Verticalauto set up for machining cast iron 537
Foil-holder system for Trawsfynydd Nuclear Power Station, Components of a, moulded from Maranyl A100 .. 889
Folding machine. RAS hydraulic .. 1108
Foliac P.T.F.E. dry-film lubricant .. 1329
Fonderia Ruffini:
Die casting activities 1543

PAGE

Ford Motor Co., U.S.A.:
Production of engine components .. 1236, 1348
Forging. Automated 1168
Forging installation. Hasenclever automatic up-setting and 477
Forging manipulator. Wellman 2-ton .. 824
Forging plant. Etchells high-speed shackle 1258
Form grinding machine. Matrix type TF 712 plunge 104
Form Pack sealing material 1318
Form tools. Copeland flat 1383
Forming blocks for producing profiles on grinding wheel peripheries. Micro-Copiform diamond 745
Forming a complex metal shape in one piece 1498
Forming. Effects of speed in metal .. 1123
Forming. Examples of cold, on Maypres machines 1322
Forming. Hydrodynamic 1147
Forming machine for metal pressings. MBM trimming and 1109
Forming machine. Townsend No. 2 drilling and 37
Forming. metal, Polyvon polyurethane elastomers for 1553
Forming methods, Efficient welding and, used in the production of rear axle housings from strip 64
Forming operations on thin sheet materials 1096
Forsyth Presses, Ltd.:
Type V30 hydraulic press 1209
Forte Piccolo portable band saw .. 53
Fortox all-Terylene slideway cover .. 208
Fortuna-Werke Specima type UFD 1600 P Polygon grinder 38
Foundation for drop forging hammer .. 327
Foundry, Cincinnati machine tool, at Tamworth 769, 1529
Frick Co.:
Vibratory deburring to improve product reliability 758
Friction welding machine. Rowland type F.W. 102, 315
Friedheim, Oscar, Ltd. 1200
Froriep hydraulic machine for rolling operations on thick plate 1404
Frye Machine Tool Co., Ltd. 1530
Fry's Diecastings, Ltd.:
Some examples of zinc die castings 540
Fuchs, F.J., Jr.:
Improved method of cutting off waveguide tubing 190
Fuel injector barrels. Set-up on Nagel SB21 drilling machine for gun drilling 1192
Fujikoshi Nachi 0 to 1-in. capacity micrometer 338
Furnace, Electron-beam, installed in Murex works 876
Furnace. Incandescent roller-hearth .. 178
Furnace. New Monometer automatic melting 330
Furnace, Royce walking beam, for sintering and heat treatment work .. 1277
Futurmill Corpn., Ltd.:
Variable-speed milling head 90
Futurmill cutters and throw-away tip tool-holders. Protolite 132

G

G.C. Electronics Co.:
Spra Koat chemicals 1162
G.K.N. spark erosion machine.
Sprayed-copper electrodes for the .. 1033
G.K.N. type D1 and D2 spark erosion machines 26

PAGE

G. P. O. spring-set assemblies. Plastics mouldings simplify 1523
G. S. P. type 25 R vertical drilling and boring machine 808
Galtona cartridge-type holders for throw-away carbide tips 857
Galtona milling cutters and turning tools 47
Gamet Products, Ltd.:
Pressure oil distributor bearing .. 52
Type P taper roller bearing 54
Gardner-Denver Co.:
Carbide support member for an internal thread milling cutter .. 1321
Gas generators. "United CO_2" exothermic 1537
Gauge. Chesterman-Sogenique electronic height 761
Gauge conforming to ARINC specifications. Startrite acceptance 1223
Gauge. finishing a tungsten carbide coated plug, Set-up on Studer grinder for 494
Gauge. Harris adjustable screw thread 147, 206
Gauge head. E. A. M. Stop-Cut type E/C2/28 electronic 369
Gauge inspection in micro-inches .. 356
Gauge. Mercer-Davis hole location .. 48
Gauge. Starrett type 449 micrometer .. 1413
Gauge. Webber optical height 1030
Gauges, Broomfield wafer slip, of tungsten carbide 715
Gauges of Nilo alloy 36. Long length .. 1415
Gauges. Taylor adjustable screw thread caliper 131
Gauging, Automatic, on special-purpose machine 735
Gauging equipment for checking brake linings. Sigma air 484
Gauging equipment. Massi Aeropan air 524
Gauging head on Mikromat surface grinder for automatic control of workpiece thickness 379
Gauging installation for inspection of motor vehicle engine pistons. Micromatic 1428
Gear chuck. Demonstration set-up to show repeatable accuracy of a Pratt-Woodworth diaphragm-type 594
Gear components. Set-up on Newall-Keighley angle-approach machine for grinding periphery and shoulder face on bevel 320
Gear cutting machine. Close-up views of the Gleason Revacycle type 720 straight bevel.. 652
Gear deburring machine. Gratomat .. 41
Gear generator. Sykes type V 10 C vertical 42
Gear grease. Revol R. 8 364
Gear grinding machine. East German automatic 307
Gear grinding machine. East German Niles type ZSTZ 127
Gear grinding machine. Maag type HSS-10 860
Gear grinding machine. Michigan automatic 879
Gear hobbing machine. Domini type A 51 1446
Gear hobbing machine. 12-in. Drummond Hoblique automatic .. 588
Gear hobbing machine. Morat type B. 9 fully-automatic 36
Gear hobbing machine, Set-up on Churchill type U. 2415 universal, for cutting flywheel starter gears .. 429
Gear hobbing machine, Set-up on Drummond Hoblique automatic, for cutting gears on commercial vehicle layshaft cluster 588, 592
Gear hobs. Sharpening and care of high-speed steel 1495

PAGE

Gear lapping machine. Oerlikon type SKL 1 bevel 23
Gear reduction units. Fenner worm .. 1415
Gear rolling machine. Maag Rollamatic type RK-12 .. .. 118, 381
Gear shaper, Drummond 2C heavy-duty Maxicut, Layshaft cluster gear blanks loaded and unloaded to, from indexing conveyor 857
Gear shaping machine. Set-up on Lorenz SRJVOD 482
Gear teeth produced by rolling on Maag Rollamatic. Workpieces with 381
Gear tooth chamfering machine. Marbaix starter ring 1432
Gear tooth deburring and chamfering machine. Cross type 85 automatic .. 1332
Gear tooth shapes. Fearns odontograph for presentation of accurate 151
Gears, Bevel, produced by shell moulding 1222
Gears cold-formed on Maypres machine. Composite 1328
Gears, Cutting crankshaft, on a Barber-Colman hobbing machine .. 1050
Gears, Cutting very large segmental, in an Italian shop 1314
Gears. large ring, Gleason quenching machine for 427
Gears. Maag Rollamatic type RK-12 roll forming machine for .. 118, 381
Gears. MonoCast nylon 901 for 1529
Gears. Notes on design of crossed helical 365, 999, 1170
Gears. Rational standards for worm .. 920
Gears. Sintered helical 943
Gearbox and clutch housing die casting. Combined 1043
Gearbox. Die cast 326
Gearbox pressure die casting for the Skoda 1000 MB car. Aluminium alloy 1266
Gearboxes. Ferrous particle detector for 521
General Electric Co., U. S. A.:
Control panel for Mark Century 2-axis point-to-point tape control system .. 634
Hydrodynamic forming 1147
Mark II point-to-point tape control system 633
Mark Century 120 tape control system 635
New turbine rotor material 768
General Motors Corpn.:
Pontiac Motor Division:
Automatic CO_2 welding of perimeter type motor car chassis 1476
Transfer machining of differential carriers 246
Hydra-Matic Division:
Automatic assembly and precision reaming on a transfer machine .. 248
General Telephone & Electronics, U.S.A. 1491
Generators. "United CO_2" exothermic gas.. 1537
Gera semi-automatic guillotine-feeding equipment 364
Gib-strip grinding machine. Reiden .. 41
Giddings & Lewis-Fraser, Ltd.:
Building machine tools 1135
Endomatic facing and centring machine set up for operations on cast iron water pump bodies 276
Endomatic 7-stage link line for motor car layshafts 1306
Giddings & Lewis Numerimite drilling machine fitted with Bendix DynaPoint 32 tape control 108, 575
Giddings & Lewis skin milling machine for machining "waffle" pattern in Saturn tank skin panels 752
Gildemeister 8-spindle chucking automatic. Work loading and unloading equipment on 321
Gilman Engng. & Mfg. Co.;
The possibilities for automating assembly operations 514

PAGE

Gimenez & Greenberg:
Power transmission unit 929
Glass fibre forming. Suction arrangement for.. 539
Glass moulds. Copper alloy for 212
Glass-reinforced, Asbestos- and, engineering plastics 404
Glass-reinforced plastics. Press-moulded Feroglas 461
Gleason type 537 hydraulically-operated quenching machine for large ring gears 427
Gleason Revacycle type 720 straight bevel gear cutter. Close-up views of the 652
Goggles. Polycarbonate lenses for Vistamax 926
Goodall, Roland, Ltd. 53
Gosmeta type D-310A-2000 centre lathe 134
Gosmeta open-back inclinable presses 201
Gosmeta type FV-1300 universal milling machine 878
Goss Co., U.S.A. 1460
Götaverken, A.B.:
Production-line building of large ships 1512
Graco Select-A-Fan spray nozzle .. 1388
Graffenstaden FB ram-type milling machine.. 915
Graffenstaden type TVF vertical boring mill 916
Granby, Paul, & Co., Ltd... .. .. 477, 600
Graphite Products, Ltd.:
Foliac P. T. F. E. dry-film lubricant 1329
Gratomat gear deburring machine .. 41
Gravity die casting with Escofier machines 815, 1043
Gravity die casting of motor car components with mechanized dies.. .. 1043
Gray Co., Inc.:
Graco Select-A-Fan spray nozzle .. 1388
Grease. Revol R. 8 gear 364
Greenwood & Batley, Ltd.:
$\frac{1}{4}$-in. thread rolling machine 305
Gresham & Craven, Ltd.:
Arrangement for manufacture of de Normanville overdrive 870
Griffiths, Samuel, (Willenhall), Ltd.:
Bentley 120-ton power press 21
Grimston Electric Tools, Ltd.:
Drilling heads on machine fitted also with Commander multi-spindle drilling attachment 689
Table drilling machine 45
Grinder. Dustuctor dust extractor for hand 757
Grinding attachment. Demonstration of Broomfield Dedtru centreless .. 856
Grinding by centreless shoe method. Newall type BG cylindrical machine for.. .. .. 486, 1263
Grinding. cylindrical, Jones-Shipman type 1080 unit wheelhead for 1036
Grinding, Demonstration of twist drill point, on Herbert Hunt DG 100 machine.. 692
Grinding, Electrolytic, demonstration on Wendt machines 832
Grinding fixture. Eldorado type B gun-drill 1206
Grinding and lapping convex radii on turning tools and copy-turning stylus points. Ewag type RS 2 machine for 973
Grinding, lapping and honing machines. East German 302
Grinding and lapping machine. Meddings-E.M.G. type 5F. 12 tool 125
Grinding machine. Abwood twin-spindle vertical surface 29
Grinding machine. Artillerie - Inrichtingen type U2 tool and cutter 119
Grinding machine. Automatic loading equipment on Landis R plunge-type cylindrical 697

PAGE

Grinding machine, Blanchard type 18C rotary table surface, with size control 13
Grinding machine. broach-, Klink type RSH 1000 1028
Grinding machine. Bryant Centa-Form plunge-form 714
Grinding machine. Burdett type 70 precision surface 1100
Grinding machine. Cincinnati Spiropoint twist drill 1465
Grinding machine. Craven heavy-duty roll 11
Grinding machine. Hammond type CBE-77 electrolytic tool 23
Grinding machine. Hille type S1 universal 114
Grinding machine. Jones-Shipman type 1070 precision cylindrical 106
Grinding machine. Jones-Shipman type 1411 SFT precision surface 35
Grinding machine. Jones-Shipman type 1040 production cylindrical 5
Grinding machine. Kombi-Schliff type EL 600 electrolytic tool 268
Grinding machine. Luke & Spencer type HSF12 Mk. 2 high-speed swing-frame 200
Grinding machine. M.S.O. type FH-200 semi-automatic hydraulic cylindrical 530
Grinding machine. Matrix type 68 fully-automatic tap 9
Grinding machine. Matrix type TF 712 plunge form 104
Grinding machine. Mikromat surface, Equipment for automatic size control on 379
Grinding machine. Myford type MG 12 plunge-feed cylindrical 986
Grinding machine. Naxos-Union type RA 300/250 cylindrical plunge. .. 1085
Grinding machine. Newall-Keighley type L12AA angle-head 24
Grinding machine. New Patron vertical-spindle double-wheel 1387
Grinding machine. Polish-built Jotes type SOC 100 internal 1429
Grinding machine. Polish-built Jotes type SPB 30 surface 1430
Grinding machine for profile milling cutters. Holroyd 1036
Grinding machine. Rank Taylor Hobson cutter 1414
Grinding machine. Reiden gib-strip .. 41
Grinding machine. Schaudt type ACM automatic camshaft 16
Grinding machine. Snow type V. 60/16 vertical-spindle surface 111
Grinding machine. Specima type UFD 1600 P Polygon 38
Grinding machine, Studer type RM 250, set up for finishing a tungsten carbide coated plug gauge 494
Grinding machine for tungsten-carbide tools. Luke & Spencer double-ended 44
Grinding machine. U.S.A.B. 10-80 internal and face 1447
Grinding machine. UVA U-55 internal .. 209
Grinding machine, Van Norman Lectro-Cam radius, for bearing races. Loading arrangement on 376
Grinding machine. Waldrich-Coburg type 10FS 1515 slideway 9
Grinding machine. Wendt type PS. 100E electrolytic 202
* Grinding machine. Wheel dressing attachment for a centreless 656
Grinding machine. Wickman-Scrivener type 2H centreless, Automatic plunge form-grinding operation performed on 1081
Grinding machine, Wickman-Scrivener type 18/20 duplex face, set up for finishing bearing rings 1083
Grinding machine. Wotan- & Zimmermann -Werke shoe-centreless internal .. 304
Grinding machines. Caledonian chamfer 1165

PAGE

Grinding machines. East German bearing raceway 305
Grinding machines, Hertlein tap-flute, in the works of Richard Lloyd .. 1551
Grinding machines with non-retracting tables. Rowland vertical spindle surface 312
Grinding machines. Recent developments in 451
Grinding machines. The use of air bearings in 150, 883
Grinding and micro-finishing side faces of brake discs. Thielenhaus type MFS 21 machine for 1471
Grinding periphery and shoulder face on bevel gear components. Newall-Keighley angle-approach machine set up for 321
Grinding. precision cylindrical, Automatic control equipment on Jones & Shipman Hydrosine machines for 650
Grinding units with air bearings. New Westwind range of 659, 725
Grinding wheel peripheries. Micro-Copiform diamond forming blocks for production of profiles on 745
Grinding wheel. Uni-Lox cold-pressed reinforced 250
Grinding wheels, Mikrosa semi-automatic unit for balancing, on machine spindles 302
Grooved forms, Plunge-cut grinding of, on M.S.O. machine controlled by Marposs measuring instrument .. 530
Grooves, Milling, in two workpieces at a time on Centec type 3R horizontal machine 274
Guest, Keen & Nettlefolds, Ltd.: Spark erosion machines 26
Sprayed-copper electrodes for the G.K.N. spark erosion machine .. 1033
Guide. Miniature photo-electric edge .. 87
Guillotine feeding equipment. Gera semi-automatic 364
Guillotine. Wallis Autogil type 36 .. 1333
Guillotines. John Marshall automatic roll-feed 269
Gun. A.R.O. portable spot welding .. 55
Gun-drill grinding fixture. Eldorado type B 1206
Gun-drilling attachment. Ward-Riddle 1037
Gun-drilling fuel injector barrels, Set-up on Nagel SB21 drilling machine for 1192
Gun-drilling a hole through web of a diesel engine connecting rod. Precimax FB 115 fine borer set up for 972
Gun-drilling holes in an aluminium component. Set-up on Heald Bore-Matic machine for precision boring and 432
Gutman, I., B.Sc., Dip.Ing.: Vibratory feeders for mechanized work handling 1292
Gyrator. Pangborn 6-cu. ft. vibratory 758

H

H.P.E. Contourmatic 3-dimensional milling machine for producing wind tunnel scale model 333
H.P.E. special plunge-turning and facing machine 322
Hacksawing machine. Set-up on Wick-steed Hydramatic 835
Hacksawing machines. New Rapidor .. 1532
Haddon Electric Welding Machines, Ltd.: Multiple-spot welder for motor vehicle parts 299
Hadfields, Ltd.: Installation of Kendall & Gent duplex plano-miller for operations on rolls 311
Hahn & Kolb Cri-Dan Viscam semi-automatic threading machine 33
Hahn & Kolb 31½-in. diameter motorized dividing and tilting table 377

PAGE

Hahn & Kolb No. 4230 tool storage cabinets 63
Hahn & Kolb (Gt. Britain), Ltd. 63, 377
Hainsworth worm gear reduction units. Fenner 1415
Hakansson cut-off wheel. Swedish-made 1243
Hall Engineering, Ltd.: Automatic ultrasonic cleaning plant 167
Flume or water channel under construction for supply to Ship Hydrodynamics Laboratory 1502
Hamilton-Zeiss 2 kW. electron beam welding equipment for operations on large parts 681
Hammer. Foundation for drop forging 327
Hammond type CBE-77 electrolytic tool grinding machine 23
Hancock & Co. (Engineers), Ltd.: Han-co-sine flame profiling machine 265
Han-co-sine ratio oxygen cutting machine 78
U-2 oxygen cutting machine for splitting discs 332
Handling of boxes of drill steels. Dexion flow rack installation for 551
Handling. mechanized work, Vibratory feeders for 1292
Handling Systems & Automation, Ltd.: Mobile crane 713
Handling unit for use with induction heating equipment. Radyne universal 61
Handyman transportable pressure cleaning unit 998
Hanover Machine Tool Exhibition 1156, 1359, 1471
Hanrez high-speed double-blow cold heading machine 744
Hardening machine, Induction, for motor vehicle components 792
Hardinge Machine Tools, Ltd.: Demonstration of fine turning on DV 59 high-speed precision lathe .. 699
Demonstration set-up on type HCT precision chucking machine 743
Hardness testers. New British-built .. 1443
Harland & Wolff, Ltd.: Installation of B.O.C. fully-automatic portal beam welding machine 165
Harris, John, Tools, Ltd.: Adjustable screw thread caliper gauge 147, 206
Harris patented floating reamers .. 1382
Harrison, T.S., & Sons, Ltd.: Die sinking milling machine 1040
Universal milling machine 988
Hasenclever, Maschinenfabrik, A.G.: Automatic forging and up-setting installation 477
200-ton hydraulic screw-press .. 599
Hayes (Engineers), Ltd.: Prototype of new 360-deg. fully automatic profile copy-milling unit 483
Head, Jones-Shipman type 8435 utility, for second-operation work 131
Head. Zagar gearless multi-spindle .. 710
Heads. Thomas unit 629
Heading machine. Salvi type TM high-speed cold 1534
Headland, Thos. P., (Machine Tools), Ltd. 964
Headstock. counter, Brown & Ward automatic bar machine with 19
* Headstock. A heavy-duty 211
Headstock. Servomatic hydraulically-driven 432
* Headstock spindle. Driving arrangement for a 925
Heald Machines, Ltd.: Bore-Matic machine set up for precision boring and gun drilling holes in an aluminium component 432
Type 3 tool sharpening machine .. 120
Healdrill (U.S.A.) numerically-controlled drilling machine 1462

PAGE

Hearing protection. Parmalee 1151
Heavy machining on a DeVlieg Jigmil .. 358
Heckler & Koch type GF O milling machine set up for milling squares on tap heads 435
Heeley, J.T., (Engineers), Ltd.: Coil feed and coil handling equipment 267
Hegenscheidt super-finishing and fillet-rolling machine 880
Hegenscheidt under-floor lathe for turning railway wheel sets 1026
Heid, Maschinenfabrik, A.G.: Application of Heid programme-controlled and copy-turning lathes .. 412
Type DZKR 630 punched-tape-controlled production copying lathe 1161
Height-measuring equipment. MPJ-Sheffield Feathertouch 48
Helec, Ltd.: O. B. comparator stand 460
Helical gears. Notes on design of crossed 365, 999, 1170
Helium-neon maser. NPL 552
Heller punched-tape control equipment 1158, 1160
Heller type BRH 65 IW tape-controlled horizontal boring and milling machine 1360
Henderson & Keay Ltd. 371
Hensel 35-ton open-fronted press set up with S.P.S. double roll feed unit .. 1533
Hensoldt optical measuring equipment and carrier bars for dogs for automatic positioning fitted to Kearns milling and boring machine 591
Hepworth Iron Co. (Engng.), Ltd.: Automatic 360-deg. hydraulic copy-turning equipment on Craven centre profiling roll turning lathe 534
Copy milling equipment applied to Kearney & Trecker Milwaukee milling machine 315
Copying equipment for Broadbent-Schofield roll turning lathe 933
Honeywell-Hepworth agreement on Versa-Trace copying equipment .. 1468
Herbert, Alfred, Ltd.: 2D Auto-Robot programme-controlled capstan lathe 1215
2D capstan lathe set up for demonstration by Nickols Automatics of automatic operation by air cylinders 1198
No. 4 Flashcap lathe with programme control 7
New Branch office at Birmingham .. 1169
Presetter for cutting tools 1261
No. 2 Programauto programme-controlled chucking automatic .. 481
No. 4 Senior turret lathe set up with BTG-Madison tooling 1083
See also17, 23, 33, 78, 162, 358, 804, 1485
Herbert, Edward G., Ltd.: British-built Tinius Olsen universal testing machine 1333
New Rapidor hacksawing machines .. 1532
Hertford Precision Engineers, Ltd. Special machine for drilling and deburring operations incorporating Desoutter automatic feed drills .. 861
Hertlein International Corpn.: Tap-flute grinders 1551
Heterospeed variable-speed unit. The Caludon 716
Hey Engineering Co., Ltd.: Double-ended No. 3 automatic facing and centring machine 1031
Heyligenstaedt Heycomat 2-1,000 Cyclo-matic hydraulic copy-turning lathe. Plug-board automatic cycle equipment on 969
Higgs Motors, Ltd.: Boring bearing housings on a turret lathe 1255
Special-purpose machine for drilling holes in frames for electric motors 390

PAGE

High Precision Equipment, Ltd.: Contourmatic 3-dimensional milling machine set up for producing a wind tunnel scale model 333
Plunge-turning and facing machine .. 322
High rate of energy machine incorporating a linear induction motor. Notes on the design of a 995
Hilger & Watts, Ltd.: Microptic Mark 2 scale reader .. 1529
Presetter for cutting tools 1261
TN 10 sphericity interferometer .. 266
Type TN 48 flatness interferometer 1105
Hille Engng. Co., Ltd.: Sheet metal testing machine 216
Hille (German) type S1 universal grinding machine 114
Hillyer Corporation: Tape-controlled milling, drilling, boring and tapping machines 829
Hird-Brown, Ltd.: Miniature photo-electric edge guide 87
Histogram plotter 762
Hob cutter inspection machine. Zeiss .. 700
Hob sharpening machine. Klingelnberg type ACW 230 1361
Hob sharpening machine. Mikron A 60/0 fully-automatic 692
Hobs. high-speed steel gear, Sharpening and care of 1495
Hobbing machine. Barber-Colman, Cutting crankshaft gears on a .. 1050
Hoblique automatic gear hobbing machine, Set-ups on Drummond, for machining gears on commercial vehicle layshaft cluster 588, 592
Hobson, H.M., Ltd.: Installation of Burgmaster tape-controlled turret drilling machine .. 708
Hockley Chemical Co., Ltd.: Type AV1/1 Vibromatic finishing machine 867
Hodgson & Sanders, Ltd.: Hosan 3½-in. stroke unit drilling head 1163
Hoepale, Walter E.: Ferro-Tic C tools for impact extruding a copper part 222
Hoffmann Manfg. Co., Ltd.: Bearings for French strip rolling mills 1023
Installation of Newall-Keighley type BG machine for grinding radius tracks in bearing races 1263
Instrument for measuring bearing contact angles 1329
Large-bore bearings for wire stranding machines 539
Simple equipment for counting balls 384
Special close-tolerance roller bearings for Sendzimir cold rolling mill 425
Vibration testing precision miniature bearings 1494
Holbrook Machine Tool Co., Ltd.: New Minor 10-in. swing centre lathe 17
Type H centre lathe with attachment for machining relief on straight and spiral cutters and counterbores .. 429
Holders for throw-away carbide tips. Galtona cartridge-type 857
Holdridge radius turning attachment .. 1535
Hole chamfering and deburring machine. Vaughan 273
Hole location gauge. Mercer-Davis .. 48
Holes in circular workpiece. pattern of, Set-up on Newall 1520 jig borer for producing 548
Holes in frames for electric motors. Higgs special-purpose machine for drilling 390
Holes in wide-variety of patterns produced in channel and angle-section frames for mounting relay base assemblies on Burgmaster tape-controlled sliding-head drilling machine 1491

PAGE

Holex unit. The 62
Hollow milling with Landis threading equipment 1485
Holo-Krome, Ltd.: New factory for socket-screw production 662
Socket screw selector 229
Holroyd, John, & Co., Ltd.: Grinding machine for profile milling cutters 1036
Plano-milling machine 1331
Type 2a auto-cycle rotor and pump screw milling machine 593
Honeywell Controls, Ltd.: Hepworth-Honeywell agreement on Versa-Trace copying equipment .. 1468
New type 200 computer 219
Honing line, Naumburg automatic transfer, for 3-cylinder engine blocks for Wartburg car 308
Honing machine, Nagel type 2TS-10-35-1A transfer, for operations on engine blocks 1198
Honing valve bodies 1212
Hopper components, Leifeld machine set up for producing, by flow turning and spinning 429
Hordern-Richmond, Ltd. 1357
Hosan 3½-in. stroke unit drilling head 1163
Housings. hand-drill and box-shaped, Die cast magnesium 547
Hoyt Metal Co. of Gt. Britain, Ltd.: Tools for shearing, blanking and forming operations made from Kirksite A cast zinc 215
Hubomat, Huller, type BA40/LK8 8-spindle drilling and boring machine set up for machining a cast iron hydraulic valve block 376
Huck Manufacturing Co.: Daisy blind rivets 1386
Huller Hubomat type BA40/LKB 8-spindle drilling and boring machine set up for machining cast iron hydraulic valve body 376
Huttenwerk Salzgitter A. G.: Large cross-rail casting in SG iron 1414
Humphris & Sons, Ltd.: Modulink strip leveller/feeder press equipment and hydraulic gripper feed unit 938
Hunt, Herbert, Ltd.: Machine for milling square-shaped ends on tap blanks 968
DG 100 twist drill point grinder .. 692
Huron-Ferranti 3-dimensional magnetic tape controlled milling machine .. 334
Hydramatic hacksawing machine. Set-up on Wicksteed 835
Hydraulic copying machine for machining model propeller blades in NPL Ship Division 76
Hydraulic cylinders. Eland HD 1-in. bore 1382
Hydraulic cylinders. Steel tubes for .. 1469
Hydraulic cylinders. Vickers Sperry Rand Slim Line 46
* Hydraulic damping unit 657
Hydraulic die casting machines. The new oil 1270
Hydraulic-feed multi-spindle drilling machines. Kitchen & Wade 763
Hydraulic fluids. New Mobil cutting and 147
Hydraulic piston pumps and motors. Vickers- Detroit in-line 1344
Hydraulic press brake. Besco-Hydro-bend type 50-100 201
Hydraulic press brake. Dreis & Krump 280-ton Speedibender 128, 538
Hydraulic press brake. Massey type BB 65-ton 119
Hydraulic press. Forsyth type V30 .. 1209
Hydraulic press. Pitzmann & Pfeiffer type ESP 63/28 open-fronted 199

PAGE

Hydraulic rubber forming press. Boulton Paul 508
Hydraulic screw-press. New Hasenclever 200-ton 599
Hydraulic testing machines. Stiffness compensator for Avery 386
Hydraulic torque amplifier. Orbit .. 996
Hydraulic tube bending machine, Type 62LD Leonard Bendmaster 858
Hydraulic valve body production. Some set-ups for 1211
Hydraulic valve. "Fluid Power" type 2A 940
Hydraulic vibrator. Dowty Rotol 100,000 -lb. thrust 74
Hydraulically-driven headstock. Servomatic 432
Hydrina fine blanking presses. Tools for producing flat square-edged blanked parts on 1383
Hydro-automatic metal-cutting machine. Scimitar 1163
Hydro-Blast casting cleaning and decoring plants at Cincinnati Tamworth foundry. Pneulec 1529
Hydro-Pneumatics, Ltd.:
Fully-automatic second-operation lathe 865, 1004
Hydrobend, Besco-, type 50-100 hydraulic press brake. 201
Hydrodynamic forming 1147
Hydroptic-7A CN4 jig boring and milling machine. Swiss-built Société Genevoise 488
Hydrosine machine. Automatic control equipment fitted to Jones & Shipman 650
Hydrostatic air bearings for high-speed spindles.. 659
Hydrostatic bearing. M.T.I.R.A. working model of single-pad 317
Hydrostatic bearing systems. The importance of.. 3
Hydrostatic bed- and column-ways. New Asquith ram-type milling and boring machine with 101
Hydrostatic conveyor system for assembling lathes 152
Hydrostatic motor. NEL low-speed .. 148
Hydrostatic pivot bearings. Accurate rotation with 149
Hydrostatic testing of tubes. Machines for the.. 1424
Hydrostatic transmissions. Bosch .. 1051
Hydrostatic ways and nut. PERA compound slide and bed assembly incorporating.. 276
Hyop 65 jig borer with Sperry tape control. Burkhardt 196
Hypressure Jenny steam cleaner .. 742
Hyster N.V.:
Vacuum-grip truck.. 707

I

I.W.K. transfer press. Drawn components produced on 215
IDRA, Ltd.:
Inclinatá 120-ton automatic hot-chamber die casting machine 328
Iimura, K.:
New crossrail construction 992
Image amplifier for quality control applications. Marconi 1434
Impact extruding a copper part. Ferro-Tic C tools for 222
Impact extrusion machine incorporating a linear induction motor. Experimental995
Impeller. Microroller burnishing tool for finishing the end face of a water pump 1193
Imperial Chemical Industries, Ltd.:
Stannine LF acid pickling restrainer 1383
Imperial Metal Industries (Kynoch), Ltd.:
Recent developments in connection with the Witton strip mill 1319
Import charges. The temporary.. .. 1067

PAGE

Imports. British machine tool 343, 608, 779, 1061, 1341, 1561
Classified 174, 284, 398, 502, 782, 950, 1118, 1398
Incandescent, Ltd.:
Roller hearth furnace installed at Accles & Pollock 178
Inclinatá 120-ton automatic hot-chamber die casting machine. IDRA 328
Incramet 800 copper alloy for glass moulds 212
Increasing productivity of used machine tools 930
Index-Werke K.G., Hahn & Tessky:
* Driving arrangement for a headstock spindle 925
* Hydraulic damping unit 658
Indexing table. Peiseler precision .. 694
Indexing table. Thomas 631
Indexing tables. Jackson-Dex 359
Indexomatic assembly machine 515
Indi-Ron measuring machine for checking surfaces of rotation 532
Indicator. Pratt & Whitney Opt-O-Limit electronic 1028
Indicator unit. A combined micrometer and sensitive 271
Induction hardening machine for motor vehicle components 792
Induction heating equipment. Radyne universal handling unit for use with 61
Induma milling machines. New 1530
Industrial (Laboratory) Services .. 908
Industrial Sales (Machine Tools), Ltd.:
Use of Meehanite for machine tool castings 442
Inglis Knibb & Co.:
Erbu 65 Quickspanner swivelling head bench vice 1381
Ingots of tantalum and niobium. Electron-beam furnace for production of .. 876
Ink, Marking, for impervious surfaces 717
Innocenti horizontal milling and boring machine at Cammell Laird Works. Large 371
Innovations type T7CCA lathe. Automatic-control of the cycle on the 917
Insley Industrial, Ltd.:
Delrin and Lexan precision balls .. 1105
Micro-miniature precision balls .. 301
Inspection, casting, Materials testing and, in an investment foundry.. .. 1486
Inspection. complex, Numerically-controlled measuring machine facilitates 909
Inspection equipment. The Metron UKM unit-construction 1188
Inspection. Gauge, in micro-inches .. 356
Inspection kit. Ellisminor industrial .. 547
Inspection machine for bearing ball surfaces. Czechoslovak-built type VKK3 59
Inspection machine. Sigma Ariel air-electric multi-dimension, Workpiece set up in the gauging head of a .. 480
Inspection machine. Suhl bearing roller 528
Inspection machine. ultrasonic weld, Special Babcock & Wilcox 1409
Inspection machine. Zeiss hob cutter.. 700
Inspection and measuring machines. Ferranti.. 472
Inspection of motor vehicle engine pistons. Micromatic gauging installation for the 1428
Inspection service. Rank Taylor Hobson 426
Inspection unit. Boeing bore 264
Institute of Sheet Metal Engineering:
Conference on press working of sheet metal 81, 213
Institution of Production Engineers annual dinner 1225
Instrument A.B. Metron:
UKM unit-construction inspection equipment 1188

PAGE

Instrument-making lathe. New Holbrook Minor 17
Insulation of leads and terminals. New Prestincert technique for the.. .. 717
Interapid dial-indicator internal comparator 206
Interchangeable dog bars, Use of, to permit rapid set-up on milling machines 437
Interferometer. Hilger & Watts flatness 1105
Interferometer. Hilger & Watts TN 10 sphericity 266
Interferometric measurement. Lasers applied for 150
Interlas, Ltd.:
Beetle tractor for welding 940
Semi-automatic CO_2 welding unit .. 1104
International Business Machines Corpn.:
Important savings obtained with numerical control 474
International General Electric Co. of New York, Ltd. 633, 634, 635
International Harvester Co. of Gt. Britain, Ltd.:
Production of components for large tractors and earth-moving equipment 452
International Harvester Co., U.S.A.:
Use of interchangeable dog bars to permit rapid set-up on milling machines 437
Solar Subsidiary:
Some results obtained with electron beam welding.. 1436
International Machine Tool Exhibition (see Olympia)
International Nickel Co. (Mond), Ltd.:
Large cross-rail casting in SG iron 1414
New austenitic cast iron for cyrogenic applications 1049
New nickel high-temperature casting alloy 794
Investment foundry. Materials testing and casting inspection in an 1486
Investment in plant and machinery .. 563
Iron casting. Progres Industriel-Jones & Lamson automatic facing lathe set up for operation on 1192
Iron. Large cross-rail casting in SG .. 1414
Italian shop. Cutting very large segmental gears in an 1314

J

Jackson Fluid Power Co.:
Jackson-Dex indexing tables 359
Jackson Gear Divn., David Brown Industries, Ltd.:
Cupralum tube for acid heating and cooling coils 1497
Jacobs Manfg. Co., Ltd.:
Type 92 lever-operated collet chuck 935
Jager magnetic drill support 964
Jameson, J.L., Ltd.:
Set-up on bridge-type tape-controlled co-ordinate positioning drilling machine at Olympia 530
Japanese-built O.M. type TMS-30/70 vertical boring mill, $\frac{1}{4}$-th scale working model of, at Olympia 434
Japanese-built O-M type TMS-30/70 vertical turning and boring mill .. 936
Japanese 0 to 1-in. capacity micrometer 338
Japanese crossrail construction.. .. 992
Japanese-made Olympus type STM toolmakers' microscope.. 494
Jarzon Plastics:
Components of a foil-holder for use in connection with Trawsfynydd Nuclear Power Station moulded from Maranyl A100 889
Jessop-Saville (Small Tools), Ltd.:
Demonstration of Cutanit Compact Junior throw-away tip type face milling cutters 699

PAGE

Jet-Tron air flow detection unit 828
Jewel Engng. (Leicester), Ltd.:
Deep-drawn components produced by the Jewelform process 217
Jig boring machine. Moore No. 1½ .. 109
Jig borer, Newall No. 2443, equipped with Ferranti digital measuring system485
Jig borer, Set-up on Newall 1520, for producing a pattern of holes in a circular workpiece.. 548
Jig borer with Sperry tape control. Burkhardt Hyop 65.. 196
Jig boring and milling machine. Swiss-built Société Genevoise Hydroptic-7A CN4 488
Jigmil. Heavy machining on a DeVlieg 358
Jigmil. Machining large castings on Diatrol II 804
Jigmil. Milling test on DeVlieg 162
Johansson, C.E., Ltd. 1446
Johnson, E.C.:
Reliability of numerical control established over a 10-year period .. 1524
Johnson, Matthey & Co., Ltd.:
Silver alloy for contact springs .. 973
Johnson, W.:
Notes on the design of a high rate of energy machine incorporating a linear induction motor 995
Joint balls. Bouncing test for universal 684
Jones, A.A., & Shipman, Ltd.:
Automatic control equipment on Hydrosine machines 650
Type 1070 precision cylindrical grinding machine 106
Type 1411 SFT precision surface grinding machine.. 35
Type 1040 production cylindrical grinding machine 5
Type 8435 utility head 131
Type 1080 unit wheelhead for cylindrical grinding.. 1036
See also 1428
Jones & Lamson type ATL 4½ by 24 automatic turret lathe 855
Jones & Lamson type ATL 4½ by 24 turret lathe. Panel for selection of automatic cycles on 968
Jones, Sidney G., Ltd. 22, 31, 41, 276, 482, 530, 969, 1160
Jorgen S. Lien Industrier:
Automatic and semi-automatic assembly methods for cash-register production 732
Efficient press-shop and automatic machining methods for producing cash-register components 620
Jotes type SOC 100 internal grinding machine.. 1429
Jotes type SPB 30 surface grinding machine.. 1430
Journal-master welding machine. Building up a worn bearing surface of an axle on a Minarik 1554
Joystick controller. Telemecanique XD 2 981

K

Kaiser tool setting unit 1029
Kane, Douglas, (Sealants), Ltd.:
Loctite retaining compound for assembling rotors to shafts by bonding 1435
Kapak range of electric motors. The AEI 1112
Kaufmann Tool & Engng. Corpn.:
Urethane tooling - applications and advantages 1012
Kavanagh O'Moore & Co., Ltd. 28, 937, 989, 1039, 1101, 1207
Kearney & Trecker-C.V.A., Ltd.:
Possibilities of progressive tooling 213, 214

PAGE

Set-up on type 3CE vertical milling machine to demonstrate Cutanit throw-away tip type face milling cutters .. 699
Special-purpose duplex milling machine from standard range of unit heads and bases 665
Type 3LP vertical milling machine with Ferranti tape control 14
See also 119, 529, 533
Kearney & Trecker (U.S.A.) Milwaukee-Matics. Operations on 474
Kearney & Trecker (U.S.A.) type 3CE Milwaukee milling machine. Hepworth copy milling equipment applied to .. 315
Kearney & Trecker (U.S.A.) Milwaukee series 307 type S-12 milling machine 533
Kearns, H.W., & Co., Ltd.:
965 P planer table type horizontal milling, boring and surfacing machine 8
Series 45 horizontal milling and boring machine fitted with Hensoldt optical measuring equipment 591
Series 45 horizontal spindle milling and boring machine set up for operations on experimental turbine blades .. 480
Tool-holder shank for use with type 72IP horizontal surfacing, boring and milling machines 485
Kelsey-Hayes Co.:
Making 1,400,000 wheels per month 844, 956, 1113, 1124
Kendall & Gent, Ltd.:
Duplex plano-miller for operations on rolls 311
Type C. PM30 plano-milling machine 10
Kendex tool holder. Large boring bar with 1099
Kennametal, Inc.:
Carbide blades for shearing tinplate 768
Carbide support tubes for internal thread milling cutter 1321
Kendex tool holder for large boring bar 1099
Kennametal (G.B.), Ltd. 1099
Kentron N.V.:
Taurus Transfer 4-spindle tapping machine.. 1209
Kerry R. 10 radial drilling machine. Qualters & Smith 991
Kerry Group Mfg. Division:
Type P radial drilling machine .. 195
Keystone Railway Equipment Co.:
Use of large boring bar with Kendex tool holder 1099
Keywipes wiping cloths 1321
Kienzle, Dr.W.:
Scrap-free bianking 83
Kieserling, Th., & Albrecht:
Machine for the hydrostatic testing of tubes 1428
Type AVS 63 non-rotary cold swaging machine.. 1473
Krushchev, Visit of Mr., to Brno International Trade Fair 772
Kinematic machines. Maypres short-stroke 1322
Kingsbury Geo., (Machine Tools), Ltd. 16, 321, 865, 1363
Kitchen & Wade, Ltd.:
Hydraulic-feed multi-spindle drilling machines 763
Travelling-type twin-head drilling machine 1330
Type H 16 horizontal face milling machine 880
Type E 31 radial drilling machine .. 44
Kitchin, F. & T.:
Harris patented floating reamers .. 1382
Klingelnberg type ACW 230 hob sharpening machine 1361
Klink type RSH 1000 broach-grinding machine 1028
Knapp Mills, Inc. 1497
Koehler machine for de-flashing bearing balls produced by cold heading .. 590

PAGE

Kolinsky, Ing. Pavel:
The new oil-hydraulic die casting machines 1270
Kombi-Schliff type EL 600 electrolytic tool grinding machine 268
Kova pipe lagging 641
Kraft, Erich, Ing.:
Machines for the hydrostatic testing of tubes.. 1424
Krause type FB-60 single-spindle fine borer 129
Kubach & Sambrook, Ltd. 1473
Kummer type K20 2-spindle automatic lathe set up for producing an "Atomium ¾" component 431

L

L.D.E.P. Stardrive range of driving units. Additions to the 1000
L.I. programme control system. Heid 412
L.R.S. Equipment, Ltd.:
Polytube covering for conveyor rollers964
Laboratory. New facilities at Westinghouse astronuclear 814
Lagging. Kova pipe 641
Lamb, F. Jos., Co.:
Pallet type 13-station transfer machine 248
Special-purpose machine for operations on control valve bodies 337
Laminate fixing units. Bighead 581
Laminate material. Aluminium-polythene 189
Laminate. New packaging 436
Lamson Technical Products, Ltd.:
Experiments with Empirical Tutors at Baker Perkins, Ltd. 1550
Lan-Elec, Ltd.:
Lan-Dec training computers 1416
Lancashire Dynamo Electronic Products, Ltd.:
Additions to the Stardrive range of driving units 1000
Lancer-Boss Group new factory.. .. 1056
Landis Lund, Ltd.:
Automatic loading equipment on Landis R plunge-type production grinding machine.. 697
Precimax type FB 115 single-ended fine borer set up for gun drilling a hole through web of a diesel engine connecting rod 972
Landis Machine Co., U.S.A.:
Hollow milling with threading equipment 1485
Landis Machine-Maiden, Ltd.:
Type 10 TRM thread rolling machine 38
See also 1485
Lang, John, & Sons, Ltd.:
Arrangement on a 25D lathe for automatic rapid withdrawal of thread cutting tool 689
Electrofeed type 20D turning, facing and screw-cutting lathe 4
Langham Tools, Ltd. 603
Lapointe Machine Tool Co., Ltd.:
HP.10 horizontal machine set up for broaching splines in bores of gear blanks 591
Type SRHE 30 horizontal machine set up for broaching fir-tree root forms on turbine blades.. 375
Films: Automotive Broaching for the Small Car 94, 1557
Helicopter Spar Broaching .. 1557
Precision Broaching for Production and Profit.. .. 1557
Texas Tower 1557
Lapping machine. Naumburg type SLZAE 800 flat 307
Lapping machine. The Tiplap tool .. 310
Lapping machine. tool grinding and, Meddings-E.M.G. type SF. 12.. .. 125

PAGE

Lapping machines. New Norton 1040
Lapping and polishing compound. Moleroda 823
Larsson type CL-22 fine boring machine 31
Laser. Raytheon type LE 1.. 1090
Lasers, Application of, for interferometric measurement.. 150
Lateral reciprocation of automatic welding heads. Advantages of 1152
Lathe beds. Milling and induction hardening of 154
Lathe, Boehringer type V 800 centre, with Heller tape control equipment.. 1158
Lathe. Boring bearing housings on a turret 1255
Lathe. Broadbent-Schofield type BSX Heavy-duty 117
Lathes. Churchill-Denhams ST 10V range of centre 601
Lathe, Churchill-Redman type P5 by 20 multi-tool, set up for operations on cast iron brake hub component .. 652
Lathe. The Colchester 50.000th .. 441
Lathe. Craven 17-in. centre profiling roll turning 103, 534
Lathe, Czech turret, incorporating 4-position turret mounted on power-operated cross-slide 1384
Lathe, Dean, Smith & Grace type 21 SB, set up for copy machining the internal form in a bottle mould 589
Lathe. Dean, Smith & Grace type 1810, Prototype re-cycling profile copying equipment mounted on 539
Lathe. Deutschland railway wheel, Set-up on 319
Lathe, Drummond Maximatic automatic multi-tool, set up for plunge-facing and copy-turning operations on large vehicle axle casings 1028
Lathe, Drummond Maxipilot hydraulic copy-turning, set up for turning outside of layshaft cluster gear forging .. 971
Lathe, Drummond Maxirapid automatic, set up for turning and plunge cutting operations on steel layshaft cluster forging 650
Lathe, Equipment on Lang 25D, for automatic rapid withdrawal of thread cutting tool 689
Lathe. Ernault-Somua type S pilote numerically-controlled 806
Lathe feed boxes. legend plates for M.T.I.R.A. equipment for assessing effectiveness of 378
Lathe. Gosmeta type D-310A-2000 centre 124
Lathe. Hardinge type DV 59 high-speed precision, Demonstration of fine turning with diamonds on 699
Lathe. Heid type DZKR 630 punched-tape-controlled production copying.. 1161
Lathe. Hepworth copying equipment for a roll turning 933
Lathe. Herbert 2D Auto-Robot programme-controlled capstan, Application of 1215
Lathe. Heyligenstaedt 2-1, 000 hydraulic copy-turning, Plug-board automatic-cycle equipment on 969
Lathe, Holbrook type H centre lathe, fitted with attachment for cutting relief on straight and spiral cutters and counterbores 429
Lathe. New Holbrook Minor 10-in. swing centre 17
Lathe. Hydro fully-automatic second-operation 865, 1004
Lathe. Innovations type T7CCA, Automatic control of cycle on the 917
Lathe. Jones & Lamson type ATL 4½ by 24 automatic turret 855, 968
Lathe, Kummer K20 2-spindle automatic, set up for producing an "Atomium 64" component 431
Lathe. Lang Electrofeed type 20D turning, facing and screwcutting 4

PAGE

Lathe. Manurhin-Decomat DCM 43 automatic 1303
Lathe. Morando TS 20 relieving.. .. 944
Lathe. New Max Muller type MDW .. 1156
Lathe. Nickols Sprint air-operated automatic capstan 1197
Lathe. Pittler 80/350 drum-type turret 642
Lathe. Pittler Pinumat tape-controlled automatic chucking.. 1159
Lathe. Polish-built TR70C surfacing .. 204
Lathe. Polish-built type TUB 32 high-speed centre 1431
Lathe with programme control. Herbert No. 4 Flashcap 7
Lathe, Progres Industriel-Jones & Lamson type C3 automatic facing, set up for operation on iron casting 1192
Lathe. Progres-Jones & Lamson type EFA automatic cycle copying .. 36
Lathe. Progres-Jones & Lamson type 7B-3½ turret 971
Lathe. Ravensburg type K600 front turning and facing 126
Lathe. Sculfort Cadet 50 918
Lathe, Set-up on Colchester Chipmaster, for turning small hand bell from brass bar 1031
Lathe, Set-up on Progres-Jones & Lamson automatic hydraulic copying, for turning a shaft from a forging of En. 353 steel.. 434
* Lathe spindle. Angular positioning arrangement for a 656
Lathe. Swift type 30F series 60 heavy-duty 111, 696
Lathe toolholder. Bimax turret-type centre 881
* Lathe tool-slide. System for automatically positioning a 925
Lathe, Vertimax No. 3 vertical-spindle production, set up for machining a flywheel housing adapter plate .. 483
Lathes, Building centre, on a flow-line basis 152
Lathes. Bullard type M Mult-Au-Matic vertical 107
Lathes, Demonstration of automatic operation of, by means of air cylinders 1198
Lathes. Heid programme-controlled and copy-turning, Application of 412
Lathes. Quick-change pre-set tooling for 604
Lathes. Rosenfors types RS-25 and RS-30 F high-speed 1101
Lathes. Simonet semi-automatic second-operation 987
Lathes, Ward capstan, Mercer air-operated bar feed unit for 1042
Lathes. New Willson 122
Laurent, Les Ateliers Roger, S.A. .. 943

Layshaft cluster gear blanks automatically loaded and unloaded to Maxicut type 2C gear shaper 857
Layshaft cluster gear forging. Set-up on Maxipilot copying lathe for turning outside of 971
Layshaft cluster gear forging. Set-up on Drummond Maxirapid automatic lathe for turning and plunge cutting operations on steel.. 650
Layshaft cluster. Set-ups on Drummond Hoblique automatic gear hobber for cutting gear on commercial vehicle 588, 592
Layshaft gear. Ex-Cell-O double-ended machine for boring, facing and chamfering operations on a 380
Layshafts. Endomatic 7-stage link line for motor car.. 1306
Layton, M.C., Ltd.:
Process for production of sprayed-copper electrodes for spark machining 1033

PAGE

Le Bas Tube Co., Ltd.:
New London distribution centre .. 1556
Leads and terminals. New Prestincert technique for insulated 717
Lectro-Cam type 2MSR radius grinder for bearing races. Loading arrangement on Van Norman 376
Lectroetch (Gt. Britain), Ltd.:
Automatic marking unit 1201
Hand stencil unit 332
Lee-Smith Photo-Mechanics, Ltd.:
Marking ink for impervious surfaces 717
Legend plates for lathe feed boxes. M.T.I.R.A. equipment for assessing effectiveness of 378
Leifeld type APED 400 machine set up for producing hopper components by flow turning and spinning 429
Leipzig Spring Fair .. 302, 361, 522 700
Lenin Works Locomotive Plant, V.I.:
Building electric railway locomotives 236
Lenses for Vistamax goggles. Polycarbonate 926
Leonard Bendmaster hydraulic tube bending machine. Type 62LD.. .. 858
Leone, Dr. William C.:
Increasing productivity of used machine tools 930
Lettering equipment. Italian-made .. 597
Letters to the editor:
Dynamic balancing to 0.3 micro oz.-in. 91
Notes on the design of crossed helical gears 999, 1170
Use of Meehanite for machine tool castings.. 442
Lexan precision balls. Delrin and .. 1105
Lien, Jorgen S., Industrier:
Automatic and semi-automatic assembly methods for cash-register production 732
Efficient press-shop and automatic machining methods for producing cash-register components 620
Lifting tables. Electro-hydraulic 234, 550
Limit switches. Multiple roller plunger 1220
Lincoln Electric Co., Ltd.:
Sprite WS 400 water-cooled CO_2 welding unit 79
Lindefort, Ltd.:
Linderode spark erosion unit based on a Bridgeport milling machine .. 385
Lindley, C., & Co., Ltd.:
Increased capacity for production of cold-headed bolts and nuts 801
Line-assembly methods in building of large ships 1512
Line, Ets. V.:
Benjamine combined planing and milling machine 812
Line milling and positioning system. EMI Emicon B100-L 579
Line. Naumburg semi-automatic vertical transfer honing 308
Linear dividing machines. Dresden 522, 668
Linear induction motor. Notes on the design of a high rate of energy machine incorporating a 995
Link-Belt P.I.V. drive for a flying shear 1490
Link-Belt 4-station shell moulding machine.. 965
Link-line for motor car layshafts. Endomatic 7-stage.. 1306
Links for crawler tracks. Tunnel broaching of 452
Lipe bar feed units. High-speed attachment for 132
Liquid-plastics treatment. A new .. 314
Lloyd, Richard, Ltd.:
Applications of Hertlein tap-flute grinders 1551
Galtona cartridge-type holders for throw-away carbide tips 857
Galtona milling cutters and turning tools 47
Platemill face milling cutters .. 857

PAGE

Loading arrangement, Fully-automatic, on Van Norman Lectro-Cam radius grinder for bearing races 376
Loading equipment on Landis R plunge-type cylindrical grinders. Automatic 697
Loading and unloading arrangement. Czech model of air-operated gantry-type work 1385
Loading and unloading on assembly lines. Electro-hydraulic lifting tables for use in 550
Loading and unloading attachment, Indexing magazine type, on Lorenz gear shaping machine 482
Loading and unloading attachment, Work, on No. 10 Verticalauto set up for machining cast iron flywheels 537
Loading and unloading equipment, Work, on Schuler type NFA 500 A notching press 746
Loading and unloading of layshaft cluster gear blanks to Maxicut type 2C gear shaper. Automatic 857
Loading and unloading unit on Mikromat thread grinder. Automatic 303
Loading and unloading workpieces on automated press lines. Danly equipment for 427
Loadmaster, Besco-, type U open-fronted power presses 118
Lockyer, K.G., B.Sc., A.M.I.E.E., A.M.Brit.I.R.E.: An application of critical path analysis 1440
Locomotives, Building electric railway, in Czechoslovakia 236
Loctite retaining compound for assembling rotors and shafts by bonding 1435
Lodge & Shipley Co.: Flo-Peeling machine 529, 610
Lorentz, M.: Short-run tooling 82
Lorenz SRJVOD gear shaping machine. Set-up on 482
Loudon Bros.: S.M.T. heavy-duty double-housing planing machine with milling head .. 194
Lubricant. Foliac P.T.F.E. dry-film .. 1329
Lubrication symbols, Borg-Warner colour-coded, for preventive maintenance 587
*Lubrication system. Bearing 212
Lubrication system. Telelube HD .. 391
Lubricator/drain units. Martonair filter/ 372
Lubro-Control unit. Norgren oil-mist 51
Ludwigsburger Maschinenbau: Burr tape-controlled co-ordinate setting worktable 1363
Luke & Spencer, Ltd.: Double-ended grinder for tungsten carbide tools 44
Type HSF12 Mk. 2 high-speed swing-frame grinder 200
Lumo treated valves. Audco 1492
Lynester Products, Ltd.: Standard machine covers in plastics 1230
Lyon marking ink for impervious surfaces717

M

MBM trimming and forming machine for metal pressings 1109
MED counterbalancing equipment for workpieces 1164
M.E.L. Equipment Co., Ltd. 636
M.P.J. Gauge & Tool Co., Ltd.: Sheffield Feathertouch height measuring equipment 48
M.S.O. type FH-200 semi-automatic hydraulic cylindrical grinding machine 530
M.T.I.R.A., Progress at the 1483
Maag Rollamatic type RK-12 roll forming machine for gears 118, 381
Maag type HSS-10 gear grinding machine 860

PAGE

Machinable steel-bonded carbide press tools - some design considerations 582
Machine, high rate of energy, incorporating a linear induction motor. Notes on the design of a 995
Machine Shop Equipment, Ltd.: Coolant treatment equipment 744
Set-up on B.S.A. type 168 AL single-spindle automatic to demonstrate Mohawk drills and R.B. cartridge tooling 743
See also 694
Machine tool building in Britain: Churchill-Redman, Ltd. 251
Giddings & Lewis-Fraser, Ltd. .. 1135
Wickman Machine Tool Manufacturing Co., Ltd. 1245
Machine tool castings. Use of Meehanite for 442
Machine tool "consumption" 899
Machine tool control panels. Siemens-Schuckert 54
Machine Tool Design and Research Conference. The Fifth .. 883, 992, 1256
Machine tool drive refinements 675
Machine tool and equipment demonstration by Gordon Try 1446
Machine Tool Exhibition. Hanover .. 1156, 1359, 1471
Machine Tool Exhibition, International (see Olympia).
Machine Tool Exhibition. Paris .. 806, 821, 913
Machine tool foundry at Tamworth. Cincinnati 769, 1529
Machine tool industries. Communist .. 1091
Machine Tool Industry Research Association: Demonstration models exhibited at Olympia 317
Equipment for assessing the effectiveness of legend plates for lathe feed boxes 378
Progress of the Association 1483
Machine tool orders 88, 92, 278, 341, 609, 834, 839, 1221, 1503, 1558
Machine tool prospects 99
Machine tool research in Czechoslovakia1384
Machine Tool Sales (London), Ltd. 127, 812
Machine tool situation. The 218
Machine Tool Trades Association: Annual Dinner, 1964 1285
Awards to design scholars 1451
Convention on problems associated with numerically-controlled machine tools 179, 223
Machine tools exhibited by Monks & Crane Ltd. Polish 1429
Machine tools. Increasing productivity of used 930
Machine tools. Report of study convention on numerically-controlled 179, 223
Machines for the hydrostatic testing of tubes 1424
Machining attachment rings by rotary milling 941
Machining camshafts for Ford engines at the Lima factory 1348
"Machining centre", Numerically-controlled, for producing completely machined turbine generator frames 1411
Machining on a DeVlieg Jigmil. Heavy 358
Machining of differential carriers. Transfer 246
Machining large castings on Diatrol II Jigmil 804
Machining methods, for producing cash-register components 620, 732
Machining operations, Delicate, facilitated by control of cutter load 1076
Machining operations on fabricated rear axle housings 564
Machining operations on Heid programme-controlled and copy-turning lathes .. 412
Machining printing press components. Numerically-controlled equipment for 1460

PAGE

Machining rocker arms at the Ford Lima engine factory 1236
Macready's Metal Co., Ltd.: New Rugby warehouse 1106
Madison, B.T.G. -, duplex roller burnishing tool 50
Madison, B.T.G. -, Microroller roller burnishing tools 1193
Madison, B.T.G. -, tooling on Herbert No. 4 Senior turret lathe 1083
Magazine bar feed unit for B.S.A. multi-spindle automatic 161
Magco, Ltd.: Magnetic drill stand 664
Magnesium die castings. Some examples of zinc and 540
Magnetic clutches. Z.F. 859
Magnetic drill stand. Magco 664
Magnetic drill support. Jager 964
Magnets. Aluminium windings for lifting 322
Magnus Chemical Co., Ltd.: Paint stripper for highly polymerized finishes 411
Maier & Remshardt type A. 60 single-spindle automatic 123
Maintenance. Borg-Warner colour-coded lubrication symbols for preventive .. 587
Man-Au-Trace hydraulic tracing equipment. Bridgeport milling machine fitted with 697
Manganese-bronze cube, Set-up for machining a component from a, on a Kummer 2-spindle automatic lathe .. 431
Manipulator. Wellman 2-ton forging .. 824
Mann, Albert, Engng. Co., Ltd.: Crompton Parkinson-Albert Mann FS range of variable-speed motors .. 62
Manpower resources 619
Manurhin Decomat DCM 43 automatic lathe 1303
Manurhin type PF 60B single-spindle automatic. Set-up on 695
Manzel piston-meter flow indicator .. 601
Maranyl A100. Components of foil-holder for use in connection with Trawsfynydd Nuclear Power Station moulded from 889
Marbaix, Gaston E., Ltd. 49, 61, 132, 427, 431, 435, 532, 590, 593, 1537, 1551
Marbaix Industries, Ltd.: Starter ring gear tooth chamfering machine 1432
Type M65C5 disintegrator for removal of broken taps and other tools .. 860
Marconi Co., Ltd.: Simple air-operated press 911
Marconi Instruments, Ltd.: Image amplifier for quality control applications 1434
Mark and Mark Century point-to-point tape control systems. G.E.C. .. 633
Marking ink for impervious surfaces .. 717
Marking machine. Masseeley type 41A automatic 130
Marking-out steel plate. Optical projector for 1517
Marking unit. Lectroetch automatic .. 1201
Marposs electronic size control unit on Naxos-Union grinder 1085
Marposs measuring equipment. M.S.O. grinding machine fitted with 530
Marrison, W.L., Ltd.: Installation of Protocol Rolflat 320 roll straightening machine 755
Marshall, John, (Engineers), Ltd.: Automatic roll-feed guillotines .. 269
Martin Engineering Development Co.: Counterbalancing equipment for workpieces 1164
Martonair, Ltd.: Filter/lubricator/drain units .. 372
Sub-base mounted pneumatic valves 263
Maser. NPL Helium-neon 552

PAGE

Massey, B. & S., Ltd.:
Type BB 65-ton hydraulic press brake 119
Massi Aeropan air-gauging equipment 524
Massi air-operated surface-finish comparator 525
Masson Seeley & Co., Ltd.:
Masseeley type 41A automatic marking machine 130
Mastercount photo-electric counter. Decca 1166
Matched metal die press moulding process 461
Matchless Machines, Ltd. .. 973, 1027, 1029
Materials testing and casting inspection in an investment foundry. 1486
Matrix type 68 fully-automatic tap grinding machine 9
Matrix type TF 712 plunge form grinding machine 104
Maxam valve and air cylinder. Simple pneumatic press incorporating .. 911
Maxi-Speed Hole Wizard 6-ft. radial drill. Demonstration of high-speed drilling on a 275
Maxicut type 2C gear shaper. Automatic loading and unloading of layshaft cluster gear blanks to 857
Maximatic automatic multi-tool lathe set up for plunge-facing and copy-turning operations on large vehicle axle casings. Drummond 1028
Maxipilot hydraulic copy-turning lathe, Set-up on Drummond, for turning outside of layshaft cluster gear forging 971
Maxirapid automatic lathe set up for turning and plunge cutting operations on layshaft cluster gear forging. Drummond 650
Maxwell, Robert, & Co., Ltd. 1165
May Pressenbau G. m. b. H.:
Examples of cold forming on Maypres machines 1322
McGregor, W.P.:
Some results obtained with electron beam welding 1436
Measurement. interferometric, Application of lasers for 150
Measuring bearing contact angles. Instrument for 1329
Measuring equipment. Developments in Zeiss 700
Measuring equipment. East German developments in precision dividing and 522, 700
Measuring equipment. height, MPJ-Sheffield Feathertouch 48
Measuring equipment, Hensoldt optical, fitted to Kearns milling and boring machine 591
Measuring equipment. Proficorder surface 593
Measuring machine. Baty type 680 universal 970
Measuring machine. Indi-Ron 532
Measuring machine, Numerically-controlled, facilitates complex inspection 909
Measuring machines. Ferranti inspection and 472
Measuring and recording machine for application to ultra-fine pitch coils. The Paton Hawksley Microdeviometer 1378
Measuring surface roughness. New Profilometer for 49
Measuring system. Ferranti digital, Newall jig borer fitted with 485
Measuring unit. Ferranti drawing .. 273
Measuring unit. Telearchics torque .. 1435
Mechanical Enterprises, Inc.:
Typits typewriter components .. 1165
Medallion produced on Alexander die-sinking machine 983
Meddings, W.J. Ltd.:
E.M.G. type SF. 12 tool grinding and lapping machine 125

PAGE

Type MB. 10 high-speed bench drilling machine 203
Meehanite castings, Sandslinger employed for filling and ramming boxes in which, are produced 388
Meehanite, Use of, for machine tool castings 442
Menn type S6 automatic screw-slotting machine 204
Menziken type LA 750 vertical machine set up for surfacing, copy turning, boring and parting off operations on cast iron cylinder liner 375
Mercer Pneumatic Tools, Ltd.:
Air-operated bar feed unit for Ward capstan lathes 1042
Mercer, Thomas, Ltd.:
Mercer-Davis hole location gauge .. 48
Meritus type A. B. 5 air-operated butt welder 80
Mesta Machine Co.:
Flying shear with Link-Belt P.I.V. drive 1490
Metal-cutting machine. Scimitar hydro-automatic 1163
Metal, Deforming, against back pressure 507
Metal forming. Effects of speed in .. 1123
Metal seizure. The problem of protection against 1094
Metal sorter. Minitor 1244
Metal Ventures, Ltd.:
Bighead laminate fixing units 581
Metallurgical Services 494
Metalock repair to large slabbing mill shear 336
Metals Research, Ltd.:
Servomet spark erosion machine .. 1305
Metco, Ltd.:
Carbide powder for flame spraying 549
New ThermoSpray nozzle 1253
Meter housing. Die cast gas 324
Metro-Cutanit, Ltd.:
Copelmet SM electrode material for spark machining 1255
Metron, Instrument A. B.:
UKM unit-construction inspection equipment 1188
Metropolis Machine Tools, Ltd. .. 1535
Michelsen, A.:
Notes on the design of crossed helical gears 999
Michigan-Dynamics:
Use of Airbrasive tool for deburring 438
Michigan Tool Co.:
Automatic gear grinding machine .. 879
Shaving cutter for double crowning .. 833
Michigan tractor shovel frames. Welding operations on 180
Micro-Copiform diamond forming blocks for producing profiles on grinding wheel peripheries 745
Micro-finishing arcuate track surfaces in races for small-diameter ball bearings. Thielenhaus KM. 1/26 machine for 1472
Micro-finishing side faces of brake discs. Thielenhaus type MFS 21 machine for grinding and 1471
Micro Turbines, Ltd. 659
Microdeviometer. The Paton Hawksley 1378
Micromatic Hone Corpn.:
Fully-automatic gauging installation for inspection of engine pistons .. 1428
Micrometer gauge. Starrett type 449 .. 1413
Micrometer. Nachi 0 to 1-in. capacity 338
Micrometer and sensitive indicator unit. A combined 271
Micrometer. Starrett Mul-T-Anvil .. 312
Micrometers. Taper-Mike internal and external 1448
Micrometrical Division, Bendix Corpn.:
Indi-Ron measuring machine 532
Proficorder measuring equipment .. 593
New Profilometer for measuring surface roughness 49

PAGE

Microptic Mark 2 scale reader, Hilger & Watts 1528
Microroller burnishing tools, B.T.G. Madison 1193
Microscope. Beck television 980
Microscope. Japanese-made Olympus type STM toolmakers' 494
Microscope. Pratt & Whitney toolmakers' 1032
Microscope. Zeiss projection type toolmakers' 703
Microscope. Zeiss universal measuring 703
Microtest dividing head. Urquhart .. 1103
Microtest range of rotary dividing tables. Urquhart 1331
Midland Saw & Tool Co., Ltd.:
Delta automatic bandsawing machine 207
Vari-Hyspeed vertical bandsawing machine 125
Miehle-Goss-Dexter, Ltd.:
Numerically-controlled equipment for machining printing press components 1460
Mikromat type SFW 250 × 1000 surface grinder. Equipment for automatic size control on 379
Mikromat type GSU 32 × 160 IV automatic universal thread-grinding machine 302
Mikron A60/60 fully automatic hob sharpening machine 602
Mikrosa semi-automatic unit for balancing grinding wheels 302
Mill. strip. Recent developments in connection with the IMI Witton .. 1319
Millers Falls Co., Ltd.:
Type 16 electrically-operated shear 766
Type 801 portable drill 267
Milling, balance-, engine connecting rods. Snyder special machine for .. 1208
Milling and boring machine with hydrostatic bed-and column-ways. New Asquith ram-type 101
Milling and boring machine, Large Innocenti horizontal, at Cammell Laird Works 371
Milling and boring machine, Kearns series 45, fitted with Hensoldt optical measuring equipment 591
Milling and boring machine, Kearns series 45, set up for operations on experimental turbine blades 480
Milling, boring and surfacing machine. Kearns 965 P planer table type horizontal 8
Milling cutter. Wickman Wimet Economill face 263
Milling cutters. Demonstration of Cutanit Compact Junior throw-away tip type face 699
Milling cutters. New Edibrac Centurion oblique face 58
Milling cutters. Platemill face 857
Milling cutters. T-MaX negative rake throw-away tip face 967
Milling cutters and turning tools. Galtona 47
Milling, drilling, boring and tapping machine. Hillyer tape-controlled .. 829
Milling equipment. Hepworth selective copy 315
Milling, facing and boring machine. Arno type FA 1500 767
Milling grooves in two workpieces at a time on Centec type 3R horizontal machine 274
Milling head, New Balding steplessly-variable, fitted to Beaver No. 2 machine 589, 776
Milling head on Butler hydraulic open-side planing machine 382
Milling head. Futurmill variable-speed 90
Milling head for mounting on planing machines. Stirk 1195
Milling head. S.M.T. heavy-duty double-housing planing machine with 194

PAGE

Milling with high positive rake cutters, Demonstration of, on Adcock & Shipley type 4 HG heavy-duty machine .. 277
Milling, Hollow, with Landis threading equipment 1485
Milling machine. Ajax Cleveland No. 3 universal 110
Milling machine. Alcera type E.N. 700 horizontal 210
Milling machine. Arboga E. M. 825 vertical 28
Milling machine. Bohle type FU100/1635 universal 199
Milling machine. Bohner & Kohle type DR 2 2-spindle rotary table continuous 1363
Milling machine. Bridgeport 360/3D T-ram, fitted with Man-Au-Trace hydraulic tracing equipment 697
Milling machine. First "Bridgeport by Adcock & Shipley" 228
Milling machine. Bridgeport, Linderode spark erosion unit based on a.. .. 385
Milling machine. Czech built type FB 32 universal 40
Milling machine. Droop & Rein type KFA 80 copy 1474
Milling machine. Edgemill plate edge.. 598
Milling machine, Ernault-Somua type CNZ 3 vertical, with punched tape control 913
Milling machine with Ferranti tape control. Kearney & Trecker-C.V.A. type 3 LP vertical 14
Milling machine. Gosmeta type FV-1300 universal 878
Milling machine. Graffenstaden FB ram-type 915
Milling machine, H.P.E. Contourmatic 3- dimensional, set up for production of wind tunnel scale model 333
Milling machine. Harrison die sinking 1040
Milling machine. Harrison universal.. 988
Milling machine. Holroyd type 2a auto-cycle rotor and pump screw 593
Milling machine. Huron-Ferranti 3-dimensional magnetic tape controlled 334
Milling machine, Kearney & Trecker-C.V.A. special-purpose, built from standard range of unit heads and bases 665
Milling machine. Kearney & Trecker Milwaukee series 307 type S-12 knee-type 533
Milling machine. Kitchen & Wade type H 16 horizontal face 880
Milling machine. Line Benjamine combined planing and 812
Milling machine with plug-board control. Cincinnati 315-16 type LL vertical.. 43
Milling machine. Polish-built FNB 26 tool-room 1430
Milling machine with programme control. "Rigid" type VS-25 vertical 105
Milling machine. Richmond type-2 universal 765
Milling machine. Rosenfors type RFU universal 1038
Milling machine. Russian-built type 6622 duplex 127
Milling machine. Taylor duplex 200
Milling machine. Union type UF. 5 universal 123
Milling machine. Werner type FV3D tape-controlled turret 1102
Milling machines. Birfield type B automatic-cycle 868
Milling machines. Christen type HKF hand-operated chamfer 269
Milling machines. Direct comparison of chatter behaviour in Adcock & Shipley 387
Milling machines. New Induma 1530
Milling machines. Use of interchangeable dog bars to permit rapid set-up on.. 437

PAGE

Milling and positioning control system. EMI Emicon B100-L line 579
Milling. rotary, Machining attachment rings by.. 941
Milling square-shaped ends on tap blanks. Close-up view of Hunt machine for.. 968
Milling squares on tap heads. Heckler & Kock type GF 0 machine set up for.. 435
Milling test on DeVlieg Jigmil 162
Milling unit. Clifton & Baird high-speed face 654
Milling "waffle" pattern in Saturn tank skin panels 752
Mills, R.G., Ltd. 823
Milwaukee-Matic. Operations on a Kearney & Trecker 474
Milwaukee type 307 series S-12 knee-type milling machine. Kearney & Trecker.. 533
Minarik Electric Co.: Journalmaster welding machine .. 1554
Minipress type 15 strip bending machine 270
Minitor metal sorter 1244
"Minor" 10-in. swing centre lathe. New Holbrook 17
Mistkop vapour collectors 61
Mitchell, P.J.: Carbon rings and packings for non-lubricated gas compressors 927
Mobil Oil Co., Ltd.: New cutting and hydraulic fluids .. 147
Model of gantry-type work loading and unloading arrangement. Czech .. 1385
Model of Japanese vertical boring mill, $\frac{1}{4}$-th working, at Olympia 434
Model propeller blades, Hydraulic copying machine for machining, in NPL Ship Division 76
Modern Techniques, Ltd.: Assembling rotors and shafts by bonding 1435
Modular vacuum unit with electron beam equipment. Torvac 991
Modulink press shop equipment. Humphris 938
Mohawk sub-land drills. Demonstration of drilling with 743
Molded Fiber Glass Body Co. 461
Moleroda lapping and polishing compound 823
Monforts, A., Maschinenfabrik: Type NA 300 tape-controlled single - spindle chucking automatic 1160
Monks & Crane, Ltd.: Exhibition of Polish machine tools.. 1429
MonoCast nylon 901 for gears 1529
Monometer Mfg. Co., Ltd.: New automatic melting furnace .. 330
Montupet, Fonderies: Applications of Escofier automatic gravity die casting machines 815
Gravity die casting of motor car components with mechanized dies .. 1043
Moore No. $1\frac{1}{2}$ jig boring machine .. 109
Moore Mfg. Co., Ltd.: High positive rake milling cutters used for demonstration on Adcock & Shipley horizontal milling machine.. 277
Morando TS 20 relieving lathe 944
Morat type B. 9 fully-automatic gear hobbing machine 36
Morris, B.O., Ltd.: Morrisflex type MD 706 abrasive band machine.. 603
Motor car bumpers. Acme-Efco machine for polishing 1276
Motor car chassis. Automatic CO_2 welding of perimeter type 1476
Motor car components by Beagle-Auster Aircraft, Ltd. Manufacture of .. 788
Motor car 3-cylinder engine blocks. Naumburg automatic transfer honing line for Wartburg 308
Motor car engine components. Production of Ford 1236, 1348

PAGE

Motor car fan and water pump spindle bearings. Quantity production of .. 1202
Motor car layshafts. Endomatic 7-stage link line for 1306
Motor car overdrive. New de Normanville 870, 1393
Motor car rear axle castings. Machining operations on fabricated.. 564
Motor car rear axle housings, Production of, from strip 64, 392
Motor car seat panels and body linings. Stafford high-production installation for cutting 676
Motor car window frames. Redman bending machine for 1191
Motor-cycle Works, Strakonice. Die casting practice at the Czech.. .. 323
Motor Gear & Engineering Co., Ltd.: Type J range of Motorgear reduction units 53, 340
Motor. linear induction, Notes on the design of a high energy machine incorporating a 995
Motor. NEL low-speed hydrostatic .. 148
Motor overload trip unit. Fastrip .. 263
Motor. Vacsyn slow speed gearless .. 1216
Motor vehicle wheels, Making 1,400,000, a month 844, 956, 1113, 1124
Motors. The AEI Kapak range of electric 1112
Motors. Crompton Parkinson-Albert Mann FS range of variable-speed .. 62
Motors. electric, Higgs special-purpose machine for drilling holes in frames for.. 390
Motors with electro-magnetic brakes. Newman electric 56
Motors. Vickers-Detroit hydraulic in-line piston pumps and 1244
Motorgear reduction units. Type J range of 53, 340
Mould for producing wax patterns for large scale production of gas turbine blades by investment casting 335
Moulds. Copper alloy for glass 212
Moulding plastics components. Transfer 373
Moulding techniques. Press 461
Mouldings. Pilot-run press for expanded polystyrene 1200
Mouldings, Plastics, simplify G.P.O. spring-set assemblies 1523
Mounting pad. Vibrashock No. D 208 .. 867
Mounts for jig borer. Barry Serva-Levl pneumatically-operated 167
Movomatic size control. Studer grinder fitted with 494
Muirhead & Co., Ltd.: Profile milling an aluminium chassis component for electronic equipment on an Alexander die-sinking machine .. 984
Mul-T-Anvil micrometer. Starrett .. 312
Mulhead Engineering Co., Ltd.: Fixture and work-indexing arrangement on rotary-table machine for drilling and tapping holes in barrel components for fuel pumps 433
Muller, Max, Brinker Maschinenfabrik: New type MDW lathe 1156
Mult-Au-Matic vertical lathes. Bullard type M 107
Multi-Angle and Multi-Drill attachments. Commander 690
Multi-spindle equipment. Zagar-Dex gearless.. 710
Multican X castable polyurethane. Unitex 1305
Multiforge machine for production of steel shackles. Etchells 90-ton .. 1259
Multiple operations. Workmaster turret-head machine for 739
Multisize collets. Burnerd.. 691
Murex, Ltd.: Installation of electron-beam furnace 876
See also.. 132
Murray, H.D., Ltd.: Reliance keyless drill chuck 269

PAGE

Myford, Ltd.:
Type MG 12 plunge-feed cylindrical grinder 986

N

NEL. Open days at the 148
NHN Tool & Die Co., Ltd.:
Ferro-Tic C tools for impact extruding a copper part 222
Nachi O to 1-in. capacity micrometer 338
Nagel type SB21 deep hole drilling machine. Set-up on 1192
Nagel type 2TS-10-35-1A transfer honing machine for operations on 4- and 6-cylinder engine blocks 1198
Narite aluminium bronze alloy die components 217
National Engineering Laboratory:
Computer applied to axial-flow fan design calculations 874
Open days 148
The use of air bearings in grinding machines 883
National Lead Co.:
*Die casting machine with automatic core locking arrangement 211
National Physical Laboratory:
A combined micrometer and sensitive indicator unit 271
Helium-neon maser 552
Open days 75
Naumburg automatic transfer honing line for 3-cylinder engine blocks for Wartburg car 308
Naumburg type SLZAE 800 flat-lapping machine 307
Naxos-Union type RA 300/250 cylindrical plunge-grinding machine 1085
Negative rake throw-away tip face mills. T-Max 967
Negri, Vicenzo:
Cutting very large segmental gears in an Italian shop 1314
Neill, James, & Co. (Sheffield), Ltd.:
75th anniversary 997
Nelmor vacuum die casting process .. 1546
Newall, Alexander S., Machine Tool Co., Ltd. 57, 206
Newall Engineering Co., Ltd.:
Double-ended fine boring machine .. 6
Newall-Keighley type L12AA angle-head grinder 24
Newall-Keighley type BG cylindrical machine for grinding ball tracks in inner bearing races by shoe centreless method 486, 1263
No. 2443 jig borer with Ferranti digital measuring system 485
Set-up on Newall Keighley angle-approach machine 320
Newall Group Sales, Ltd. 1263
Newman Industries, Ltd.:
Installation of Higgs special-purpose machine for drilling holes in frames for electric motors 390
Motors with electro-magnetic brakes 56
News of the Industry:
Cheshire 389, 441
Derbyshire 225
Lancashire 388, 943, 1111, 1279, 1335, 1390, 1501, 1555
London 166, 493, 721, 1170, 1223, 1391, 1554
Nottinghamshire 278
Scotland 88, 165
The South 166, 338, 493, 552, 665, 721, 772, 888, 1001, 1054, 1170, 1223, 1336, 1391, 1554
Yorkshire 337, 491, 550, 607, 720, 773, 834, 889, 1052, 1221, 1449
Ni-Resist cast iron 1049
Nickel high-temperature casting alloy. New 794
Nickel steel castings. Very large .. 1302
Nickols Automatics, Ltd.:
Demonstration on Herbert 2D capstan lathe of equipment for automatic operation by means of air cylinders .. 1198
Sequence control panel employed with system of automatic air operation of capstan lathes 1084
Sprint air-operated automatic capstan lathe 1197
Niles type Z8TZ gear grinding machine. East German 127
Nilo alloy 36. Long length gauges of .. 1415
Nimonic components for turbo-jets. Long life of 800
Noble & Lund, Ltd.:
22-in. automated type C cold sawing machine 116
Automatic circular saw sharpening machine 764
6-in. spindle floor-type boring machine 877
Nobrac Carbon, Ltd.:
Carbon rings and packings for non-lubricated gas compressors 927
Nomo, S.p.A.:
Arno type FA 1500 horizontal milling, facing and boring machine 767
Bergonzo camless single-spindle turret-type automatic 809
Norair Division, Northrop Corpn.:
Delicate machining operations facilitated by control of cutter load 1076
Numerically-controlled measuring machine facilitates complex inspection 909
Norfolk range of fine-blanking presses 163
Norgren, C.A., Ltd.:
Oil-mist Lubro-Control unit 51
Northrop Corporation:
Delicate machining operations facilitated by control of cutter load 1076
Numerically controlled measuring machine facilitates complex inspection 909

Norton Abrasives, Ltd. 1431
Norton Co.:
New lapping machines 1040
Tumblex TJ abrasive material for vibratory finishing 1431
Norton, W.E., (Machine Tools), Ltd. 110
Norwegian Central Institute for Industrial Research:
Essi-Kongsberg director unit 348
Notching press. Work loading and unloading equipment and tool reciprocating mechanism on Schuler type NFA 500 A 746
Notching press. Zeulenroda automatic lamination 363
Nozzle. Graco Select-A-Fan spray .. 1388
Nozzle. New ThermoSpray 1253
Numerical control agreement between Plessey-UK and Bendix 226
Numerical control. Cramic router fitted with Ferranti continuous-path .. 370
Numerical control equipment for European machines. Bunker-Ramo .. 934
Numerical control. Ernault-Somua Type S Pilote lathe with 806
Numerical control. 8-axis horizontal boring machine with 1411
Numerical control of flame cutting. Essi-Kongsberg continuous programme generator for 348
Numerical control. Important savings obtained with 474
Numerical control, Reliability of, established over a 10-year period .. 1524
Numerical control for turning operations 955
Numerical positioning system. Philips 636
Numerical sequence control. B.S.A. type 95E chucking automatic with .. 1024
Numerically-controlled drilling machines. Burgmaster 1462, 1491
Numerically-controlled equipment for machining printing press components 1460
Numerically-controlled machine tools. Ferranti plans in connection with procedures to facilitate component design and production of control tapes for .. 439
Numerically-controlled machine tools. Report of the study convention on 179, 223
Numerically-controlled measuring machine facilitates complex inspection .. 909
Numerically-controlled punching of holes in steel angle section and cropping section to length. Vernet-Promat equipment for 919
Numerimite tape-controlled drilling machine. Giddings & Lewis .. 108, 575
Nutracote plastics coating 1253
Nuts and bolts. Increased capacity for production of cold-headed 801
Nuts for pipe fittings. Witzig & Frank multi-spindle machine for boring and tapping 1359
Nylon assembly fixtures 912
Nylon 66. Components of foil-holder system for nuclear power station moulded from 889
Nylon 901, MonoCast, for gears 1529
Nymberg, R.J.:
Reliability of numerical control established over a 10-year period .. 1524

O

O.B. comparator stand. Helec 460
O-M, Ltd.
Type TMS-30/70 vertical turning and boring mill 434, 936
Odontograph. Fearns 151
Oerlikon type SKLI bevel gear lapping machine 23
Oerlikon-Junkers coil strip welding machine 1319
Office recording machine. Die castings for use in 545
Oil. Almasol M.16/62 synthetic soluble 281
Oil distributor bearing. Gamet pressure 52
Oil-hydraulic die casting machines. The new 1270
Oil-mist Lubro-Control unit. Norgren 51
Oldfield, C.:
The machine tool situation 218
Oldsmobile crankshafts. Fillet rolling to increase fatigue life and bending moment of 862
Oliver Machinery Co., Ltd. .. 128, 538
Olympia. International Machine Tool Exhibition at:
Machine tool exhibits 4, 100, 194, 477, 513, 714, 868, 878, 880, 987, 1303, 1432
Olympia in retrospect 235, 273, 315, 375, 427, 479, 530, 588, 650, 689, 743, 855, 968, 1027, 1081, 1192
Opening of Exhibition 170
Some exhibitors and visitors 133
Tools and equipment .. 46, 130, 194
Olympic Stranding Machinery, Ltd.:
Use of large-bore Hoffmann bearings for wire stranding machines 539
Olympus type STM toolmakers' microscope. Japanese-made 494
Omega Laboratories, Ltd.:
S.L. 21 ultrasonic bonding machine 606
Onsrud Machine Works, Inc.:
Double-head rotary milling machine for machining attachment rings for Polaris missiles 941
Opt-O-Limit electronic indicator. Pratt & Whitney 1028
Optical dividing head. New Zeiss .. 706
Optical height gauge. Webber 1030
Optical measuring equipment, Hensoldt, fitted to Kearns milling and boring machine 591
Optical projector. Baty series 700 .. 58
Optical projector for marking out steel plate 1517

PAGE

Optidress wheel dressing attachment .. 856
Orbit Torque Generator 996
Orders. Machine tool 88, 92, 278, 341, 609, 834, 839, 1221, 1503, 1558
Outboard Marine Corporation:
Evinrude Motors Divn.:
Highly mechanized shell mould foundry 965
Oven. Crompton Parkinson stud welding equipment for Barlow-Whitney electric 851
Overbeck Zetto 30 machine fitted with Wendt electrolytic grinding equipment 832
Overdrive. New de Normanville .. 870, 1393
Overseas trade 403
Oxygen cutting machine. Hancock Hanco-sine ratio 78

P

PERA compound slide and bed assembly used in machine tool research .. 276
PERA investigations into air cylinder performance 1055
PERA reamer. Australian company licensed to manufacture the 614
PERA, Visit to, by managing director of the Royal Swedish Academy of Engineering Sciences 442
P.I.V. drive for a flying shear. Link-Belt 1490
P.I.V. units with electronic speed control 1166
P.M.T. (Machine Tools), Ltd. 1389
P.T.F.E. dry-film lubricant. Foliac .. 1329
Packaging, Application of expanded polystyrene moulded, in engineering 1200
Packaging laminate. New 436
Packings, Carbon rings and, for non-lubricated gas compressors 927
Pai-Kor used for liquid floor surface protection 314
Paint spraying unit. "Automatic Equipment" type CM 600 automatic 1155
Paint stripper for highly polymerized finishes 411
Painting installation for coating both surfaces of ships' plates on a roller conveyor. Aerograph DeVilbiss airless spray 1391
Pallet racks. "Constructors" adjustable 751
Panel on Jones & Lamson type ATL 4½ by 24 automatic turret lathe for selection of automatic cycles 968
Panels. Milling "waffle" pattern in Saturn tank skin 752
Pangborn Corpn.:
6-cu. ft vibratory gyrator 758
Panhard die cast combined gearbox and clutch housing 1043
Pantograph engraving machine. Rank Taylor Hobson type K 600
Parallelism testing instruments. Suhl angle and 526
Paris Machine Tool Exhibition 806, 821, 913
Park Gate Iron & Steel Co., Ltd.:
Installation of Broadbent-Schofield roll turning lathe fitted with Hepworth copying equipment 933
Parker Pen Co., U.S.A. 492
Parkinson, W.:
A CPA bar-chart for a special-purpose machine 300
Parkson Industrial Co., U.S.A. 492
Parmalee (G.B.), Ltd.:
Saf-Ear-Shield 1151
Paton Hawksley Electronics, Ltd.:
The Microdeviometer 1378
Paton Institute of Welding:
Sovroweld type A. 535 3-electrode track-mounted Electroslag welding machine 1555
Patron Machine Tool Co. Ltd.:
New vertical-spindle double-wheel grinding machine 1387
Patterns for Tufnol drop forging dies. Typical master 1336

PAGE

Paul, K.S., Products, Ltd.:
New anti-seizing compound 649
The problem of protection against seizure 1094
Payne Products International, Ltd. .. 699
Pearson Panke, Ltd.:
Examples of components produced by fine blanking 215
Type 122 sheet metal testing fixture 217
See also 472, 1322
Pegasus electro-hydraulic servo-drive system. Rig to demonstrate speed control performance of 318
Perfex cleaning cloths 1321
Perry, E.:
A complex metal shape formed in one piece 1498
Peiseler precision indexing table .. 694
Peking. British Exhibition in 1110
Pels, Henry, & Co., Ltd. 1156
Perret Control Co., Ltd.:
18-channel drum type cycle controller 1107
Philips numerical positioning system .. 636
Phoenix CM-70 carbon-manganese steel 1445
Photo-electric counter. Decca Master-count 1166
Photo-electric edge guide. Miniature .. 87
Piccolo portable band saw. Forte .. 53
Pickling restrainer. Stannine LF acid 1383
Pidgen Bros., Ltd. 767
Pifat single-spindle front chucking automatics. Pittler 643
Pillow blocks. Rollwell roller bearing 262
Pilot-run press for expanded polystyrene mouldings 1200
Pilote numerically-controlled lathe. Ernault-Somua type S 806
Pinch-pointing machine. S.I.M.A. type SP 5 878
Pinches, John, (Medallists), Ltd.:
Medallion produced on Alexander die-sinking machine 983
Pinions, bevel, Set-up on Gleason Revacycle machine for producing 654
Pinumat tape-controlled automatic chucking lathe. Pittler 1159
Pipes, cold bending, Babcock & Wilcox machine for 1407
Pirex 80/350 drum-type turret lathe. Pittler 642
Pirns for the textile industry. Die cast 545
Piston-meter flow indicator. Manzel .. 601
Piston pumps and motors. Vickers-Detroit in-line 1244
Piston for use with aluminium cylinder blocks without liners 1318
Pistons, inspection of motor vehicle engine, Micromatic gauging installation for 1428
Pit props. A.I. welding installation for Dowty 1132
Pitapak repair material 212
Pittler (Gt. Britain), Ltd. 642, 1159, 1359
Pittler Maschinenfabrik A.G.:
Activities of the company 642
Pinumat tape-controlled automatic chucking lathe 1159
Pitzmann & Pfeiffer type ESP 63/28 open-fronted hydraulic press 199
Planer table type horizontal milling, boring and surfacing machine. Kearns 965 P 8
Planing machine with cross-rail toolbox. S.M.T. double-column 379
Planing machine with milling head. S.M.T. heavy-duty double housing 194
Planing machine. Self-contained milling head on Butler openside 382

Planing and milling machine. Line Benjamine combined 812
Planing and milling machine. Stirk 14-ft 1193, 1454
Plano-milling machine. Holroyd .. 1331
Plano-milling machine. Kendall & Gent type C. PM30 10

PAGE

Plano-milling machine for operations on rolls. Kendall & Gent duplex 311
Plant and machinery. Investment in .. 563
Plasma flame spraying. Metco 439 carbide powder for 549
Plastics. Asbestos- and glass-reinforced engineering 404
Plastics for bearing clearance measurement. Plastigauge 1093
Plastics bearings for industry 974
Plastics coating. Nutracoat 1253
Plastics, Examples of press-moulded glass-reinforced products 461
Plastics laminate fixing units. Bighead 581
Plastics. Lynester standard machine covers in 1230
Plastics mouldings simplify G.P.O. spring-set assemblies 1523
Plastics presses. Developments in B.I.P. 373
Plastigauge Manfg. Co.:
Plastics for bearing-clearance measurement 1093
Plastraulic collet chuck. Crawford .. 55
Plate edge milling machine. Edgemill 598
Plates, ships', Autokon system for producing 348
Platemaster portable spot welding gun. A.R.O. 55
Platemill face-milling cutters 857
Plating plant for Hungary. Canning cylinder copper 1002
Plating process. Dalic 1144
Plauert type WH80 horizontal boring and milling machine 25
Plessey Co. (U.K.), Ltd.:
Bench-type UNIcrimp tool 773
Plessey-UK, Ltd.:
Bendix DynaPoint 32 tape control equipment 574
Mark 2 8-channel tape control system for Huller Hubomat drilling and boring machine 376
Mark II point-to-point tape control system 637
Numerical control agreement with Bendix 226
Plotter. Histogram 762
Plug-board automatic-cycle equipment on Heyligenstaedt Heycomat 2-1,000 Cyclomatic hydraulic copy-turning machine 969
Plug-board control. Cincinnati 315-16 type LL vertical milling machine with 43
Plunge-form grinding machine. Bryant Centa-Form external 714
Plunge-turning and facing machine. H.P.E. 322

Pneulec, Ltd.:
Hydro-Blast casting cleaning and decoring plants at Cincinnati Tamworth foundry 1529
Pneumatic valves. Martonair sub-base mounted 263
Point-to-point tape control systems 572, 632
Pointing machine. S.I.M.A. type SP 5 pinch 878
Polak, Ing. J.:
Developments in "Original Polak" die casting machines 1264
Polaris missiles, Machining attachment rings for, by rotary milling 941
Polish-built type TR70C surfacing lathe 204
Polish machine tools exhibited by Monks & Crane, Ltd. 1429
Polish Standards Committee:
A method of testing tap performance 1364
Polisher Rentals, Ltd.;
Unic industrial floor polisher 823
Polishing machine for motor car bumpers 1276
Polishing machines for metal parts. Acme-Efco semi-automatic 1276
Pollard Bearings, Ltd.:
Producing ribbon cages for standard ball bearings 420

PAGE

Quantity production of motor car fan and water pump spindle bearings .. 1202
Polybutylcuprysil (PBC) anti-seizing compound 649
Polycarbonate lenses for Vistamax goggles 926
Polygon grinder. Specima type UFD 1600P 38
Polymer Corporation 974
Polypenco, Ltd.:
MonoCast nylon 901 for gears .. 1529
Plastics bearings for industry .. 974
Polystyrene mouldings. Pilot-run press for expanded 1200
Polythene, Aluminium-, laminate material.. 189
Polytube covering for conveyor rollers 964
Polyurethane. Unitex Multican X castable 1305
Polyvon polyurethane elastomers for metal forming 1553
Pontiac Motor Division, General Motors Corpn.:
Automatic CO_2 welding of perimeter type motor car chassis 1476
Transfer machining of differential carriers.. 246
Position display, Rheem, for increasing productivity of used machine tools .. 930
* Positioning arrangement for a lathe spindle. Angular 656
Positioning. EMI Emicon B100-L control system for line milling and 579
* Positioning a lathe tool-slide. System for automatically 925
Positioning system, E. M. I. B100, incorporated in David Brown co-ordinate positioning table on Asquith radial drilling machine 533
Positioning system. Ferranti 2-axis co-ordinate.. 632
Positioning system. Philips numerical 636
Positioning system. Staveley-Smith .. 640
Positioning table. co-ordinate, Aciera production drilling machine with .. 27
Pospisil, Josef:
Building electric railway locomotives in Czechoslovakia 236
Powder metallurgy. Developments in .. 731
Powder, Metco 439 carbide, for flame spraying.. 549
Power Jacks, Ltd.:
Hydraulically-operated swing clamp 923
Power slide. Rollguide precision .. 571
Power transmission unit 929
Powerthrust radial drill. Asquith type 6PT 23/96 8-ft. 693
Pratt, F., & Co., Ltd.:
10-ton chuck for holding radio-active control rod assemblies during maintenance 491
High/low pressure chucking equipment 146
Set-up to show repeatable accuracy of Pratt-Woodworth diaphragm type gear chuck 594
Pratt, M.:
A CPA bar-chart for a special-purpose machine 300
Pratt Precision Hydraulics, Ltd.:
Some production set-ups 1211
Pratt & Whitney numerically-controlled measuring machine facilitates complex inspection 909
Pratt & Whitney Opt-O-Limit electronic indicator 1028
Pratt & Whitney type C Tape-O-Matic tape-controlled drilling machine .. 487
Precimax type FB 115 fine-borer set up for gun drilling a hole through web of diesel engine connecting rod 972
Precision Gear Machines & Tools, Ltd. 337
Precision Grinding, Ltd.:
The Alexander die-sinking machine and some examples of work carried out on it 982

PAGE

Preheating moulding powder for feeding to transfer press. Method of measuring and 374
Preparing punched tapes, Staveley-Smith type D. T. P. V. equipment for .. 718
Preset tooling for lathes. Quick-change 604
Presetter for cutting tools. Herbert .. 1261
Presetting arrangements. Tool 1011
Press. The Boulton Paul Suproform .. 508
Press brake. Besco-Hydrobend type 50-100 hydraulic.. 201
Press brake. Dreis & Krump 28-ton Speedibender hydraulic 128, 538
Press brake. Massey type BB 65-ton hydraulic 119
Press brake. Sedgwicks type YH-8 electro-hydraulic 39
Press brakes. Ste-Co range of 1530
Press brakes. Tandem arrangement of Promecam 794
Press. British Schuler type P2E2Sq. 300/2.1/0.5 121
Press. Browells 15-ton electro-hydraulic 1102
Press. Bruderer 30-ton high-speed .. 1109
Press. Chappuis horizontal transfer, Producing ribbon cages for Pollard standard ball bearings on a 420
Press control system. Electronic .. 626
Press for expanded polystyrene mouldings. Pilot-run 1200
Press, Fielding 2,000-ton, for forming heated plates into tubes 1405
Press. Forsyth type V30 hydraulic .. 1209
Press. New Hasenclever 200-ton hydraulic screw 599
Press. A large highly versatile transfer 466
Press lines. Danly equipment for loading and unloading workpieces on automated 427
Press-moulded glass-reinforced plastics 461
Press. Rousselle type 6B 60-ton power 1533
Press, 2,000-ton Sack & Kiesselbach hydraulic, used for die and mould hobbing operations.. 722
Press. Samuel Griffiths Bentley 120-ton 21
Press. Schuler type NFA 500 A notching, Automatic loading and unloading equipment and tool reciprocating mechanism on 746
Press, Shaw baling, for "man-made" fibres 1335
Press & Shear Machinery Co., Ltd.:
Demonstration of sheet-metal working machines 1108
See also.. .. .. 794, 1533
Press-shop and automatic machining methods for producing cash-register components. Efficient 620, 732
Press shop equipment. Humphris Modulink 938
Press. Simple air-operated 911
Press. Stafford hydraulic 679
Press tool materials. Advantages of urethanes as 347
Press tool. Warner progressive.. .. 888
Press tools. Equipment to facilitate mounting of 622
Press tools, Machinable steel-bonded carbide - some design considerations 582
Press tools. progressive. Components produced by 81
Press tools. Short-run 82
Press tools. Templet.. 1357
Press tools, "Temporary", for initial runs 625
Press tools. Urethane rubber stripper units for.. 1522
Press. U. S. I. horizontal cold extrusion 1130
Press, 700-ton vertical extrusion, installed at NPL 75
Press. Weldall hydraulic scrap-metal baling 1356
Press. Wilkins & Mitchell 75-ton clipping 198, 609

PAGE

Press working of sheet metal. Conference on 81, 213
Press. Zeulenroda automatic lamination notching.. 363
Presses. Besco-Loadmaster type U open-fronted power 118
Presses. Developments in B. I. P. plastics 373
Presses. Examples of cold forming on Maypres.. 1322
Presses. Gosmeta open-back inclinable 201
Presses. Norfolk range of fine-blanking 163
Presses. S. P. S. roll feed units for 1533
Presses. sensing valve for power, Wellman Ross dual 411
Pressings, Production of, using Templet and Crosland tooling systems.. .. 1357
Pressure vessels in prestressed concrete. Large 587
Prestincert, Ltd.:
New technique for insulated leads and terminals 717
Printed circuit boards. Drilling.. .. 710
Printing press components. Numerically-controlled equipment for machining 1460
Prodac numerical control system .. 1411
Producers Container Co.:
Use of carbide blades for shearing tinplate 768
Production control at the works of W. H. A. Robertson & Co., Ltd. 489
Production Engineering Research Association:
Australian manufacturing rights for the PERA high-speed reamer.. .. 614
Compound slide and bed assembly used in machine tool research 276
Investigations into air cylinder performance 1055
Part of open-plan exhibition hall .. 609
Visit by managing director of Royal Swedish Academy of Engineering Science 442
Production-line building of large ships 1512
Production set-ups at the works of Pratt Hydraulics, Ltd. 1211
Productivity of used machine tools. Increasing 930
Proficorder surface measuring equipment 593
Profile copy-milling unit. Prototype of a new Hayes 360-deg. fully automatic 483
Profile copying equipment, Prototype automatic re-cycling, mounted on D. S. & G. type 1810 lathe 539
Profile milling an aluminium chassis component for electronic equipment on an Alexander die-sinking machine .. 984
Profile milling machine. Droop & Rein type KFA 80 1474
Profiles on grinding wheel peripheries. Micro-Copiform diamond forming blocks for production of 745
Profiledata data processing system. Ferranti.. 687
Profiling machine. Hancock Han-co-sine flame 265
Profiling roll turning lathe. Craven 17-in. centre 103, 534
Profilometer for measuring surface roughness. New 49
Programauto programme-controlled chucking automatic. Herbert 481
Programme board. Sealectoboard .. 1442
Programme control. Cincinnati milling machine fitted with Telematic .. 43
Programme control. Herbert No. 4 Flashcap lathe with 7
Programme control. "Rigid" type VS-25 vertical milling machine with.. .. 105
Programme control. Workmaster turret-head machine for multiple operations under 739
Programme-controlled and copy-turning lathes. Application of Heid L. I. .. 412

PAGE

Programme controller. Perret 18-channel drum-type 1107
Programme drums for a business machine. Die cast 546
Programme generator for numerical control of flame cutting. Essi-Kongsberg continuous 348
Progres Industriel-Jones & Lamson type C3 automatic facing lathe set up for operation on an iron casting .. 1192
Progres-Jones & Lamson type EFA automatic cycle copying lathe.. .. 36
Progres-Jones & Lamson type EFA 25/500 automatic hydraulic copying lathe set up for turning a shaft from a forging of En. 353 steel 434
Progres-Jones & Lamson type 7B-3½ turret lathe 971
Progressa universal pressure filters for cutting fluids 60
Progressive press tool. Warner.. .. 888
Progressive press tools. Components produced by 81
Progressive tooling. Some of the possibilities of 213, 214
Projection system. Control of flame-cutter from optical.. 1520
Projector. Baty series 700 optical .. 58
Projector. Shadomaster optical, Special fixture for checking blade forms employed with a 335
Projector, Optical, for marking out steel plate 1517
Promecam press brakes. Tandem arrangement of 794
Propeller blades, Hydraulic copying machine for machining model, in NPL Ship Division 76
Protection against seizure. The problem of 1094
Protector for motor-driven machines. Fastrip 263
Protocol Engineering, Ltd.:
Rolflat 320 roll straightening machine 755
Protolite, Ltd.:
Futurmill cutters and throw-away tip tool-holders 132
Pryor, Edward, & Son, Ltd.:
Type EP 70 electrolytic etching machine.. 765
Pullmax X8 plate bevelling machine with tube-end belling attachment 78
Pulse generators for timing S. T. D. telephone calls. Use of plastics mouldings in spring-set assemblies for.. 1523
Pump bodies. cast iron water, Set-up on Giddings & Lewis-Fraser Endomatic for operations on 276
Pump spindle bearings. water, Quantity production of motor car fan and .. 1202
Pump units. Stokes mechanical booster vacuum 684
Pumps. drilling and tapping holes in barrel components for fuel, Fixtures and work-indexing arrangement on Mulhead rotary-table machine for .. 433
Pumps and motors. Vickers-Detroit in-line piston 1244
Punch. Whitney type 791 × 18 portable hydraulic 828
Punched-card machine tool control system. Ekco 576
Punched-tape control. Ernault-Somua type CNZ 3 vertical milling machine with 913
Punching of holes in steel angle section and cropping section to length. Vernet-Promat equipment for 919

Q

Quality control applications. Marconi image amplifier for 1434

PAGE

Qualters & Smith Bros., Ltd.:
Kerry R. 10 radial drilling machine 991
Quantity production of motor car fan and water pump spindle bearings 1202
Quenching machine for large ring gears. Gleason type 537 hydraulically-operated 427
Quickspanner swivelling head bench-vice. Erbu 36 1381
Quicktap multi-spindle tapping machine. Slack & Parr 764

R

RAS hydraulic folding machine 1108
R. B. cartridge tooling. Demonstration of 743
Rabone-Chesterman, Ltd.:
Chesterman-Sogenique electronic height gauge 761
Rack installation, Dexion flow, for handling boxes of drill steels.. .. 551
Racks. "Constructors" adjustable pallet 751
Radii on turning tools and copy-turning stylus points. Ewag type RS2 machine for grinding and lapping.. 973
Radio-active rod assemblies, Pratt 10-ton chuck for holding, during maintenance 491
Radio transmitter-receiver sets. Magnesium die castings for portable .. 543
Radius turning attachment. Holdridge.. 1535
Radyne, Ltd.:
Universal handling unit 61
Railway locomotives in Czechoslovakia. Building electric 236
Railway wheel lathe. Set-up on Deutschland type DRH II 110K 319
Railway wheel sets. Hegenscheidt under-floor lathe for turning 1026
Ram of Asquith 5½-in. spindle horizontal boring and milling machine 698
Ramstetter equipment for automatic control of Graffenstaden vertical boring mill 917
Rank Taylor Hobson Divn. of the Rank Organization:
Bench cutter grinder for engraving machine cutters 1414
Film: The Talyrond 1503
Inspection service 426
Type K pantograph engraving machine 600
Rapid Magnetic, Ltd.:
Aluminium windings for lifting magnets 322
Rapidor hacksawing machines. New .. 1532
Ratchfix spanner.. 164
Ravensburg type K600 front turning and facing lathe 126
Raytheon Co.:
Type LE 1 laser 1090
Raytheon-ELSI S. p. A. 1090
Re-equipment - what is the size of the problem? 1347
Reamer. PERA high-speed, Australian manufacturing rights for the 614
Reamers. Harris patented floating .. 1382
Reaming, Automatic assembly and precision, on a transfer machine .. 248
Reaping the harvest 787
Reciprocating mechanism, Tool, on Schuler type NFA 500 A notching press 747
Reciprocation of automatic welding heads. Advantages of lateral 1152
Recorder. Venner type SHRI elapsed time 1494
Recording machine. office, Die castings for use in 545
Redman Tools, Ltd.:
Bending machine for motor-car window frames 1191
Reduction units. Type J range of Motorgear 53, 340

PAGE

Reeb, C. E.:
Use of interchangeable dog bars to permit rapid set-up on milling machines 437
Refinements for accurate turning .. 843
Refrigeration equipment production. Vibratory deburring to improve product reliability in 758
Reglus ⅝-in. deep throat bench drilling machine.. 1381
Regna cash registers. Production of 620, 732
Reiden gib-strip grinding machine .. 41
Reinecker type HS 1 backing-off machine for milling cutters and hobs 1475
Relay. Brookhirst Igranic type 906 timing 1187
Relays. "B. & R. Relays" types D03/P and D53/P plug in 875
Reliance keyless drill chuck 269
Relief on straight and spiral cutters and counterbores. Holbrook type H centre lathe with attachment for cutting .. 429
Relieving lathe. Morando TS 20 944
Removal of broken taps. Marbaix type M65CS disintegrator for 860
Removing broken tools, "Electro Arc" disintegrator for, and producing holes 146
Renault machine for automatically deburring ends of bores of small tubes .. 813
Renault Machine Tools (U. K.), Ltd. .. 813
Repair to large slabbing mill shear. Metalock 336
Repair material. Pitapak 212
Repforce, Ltd.:
Repz embracing clamp 1273
Research Institute for Machine Tools and Machining, Prague. Work of the .. 1384
Restrainer. Stannine LF acid pickling 1383
Retaining rings. Design and production with circlips and 1180
Revacycle type 720 straight bevel gear cutter. Close-up views of the Gleason 652
Revol, Ltd.:
R. 8 gear grease 364
Rheem Electronics Corpn.:
Digital display units and measuring equipment for increasing productivity of used machine tools 930
Richard Thomas & Baldwin, Ltd.:
Metalock repair to large slabbing mill shear 336
Richards, George, & Co., Ltd.:
BMO 4 boring and turning mill .. 1206
22-ft. diameter table boring and facing machine installed in Babcock & Wilcox works.. 1410

Richmond Machine Tool Co., Ltd.:
Tape-controlled turret-type drilling machine.. 990
Type-2 universal milling machine .. 765
"Rigid" KAB 50 N bed-type die-sinker with Ferranti tape control 197
"Rigid" type VS-25 vertical milling machine with programme control .. 105
Rim-making machines. Wheel .. 957, 1124
Rings, attachment, Machining, by rotary milling 941
Rings and packings, Carbon, for non-lubricated gas compressors 930
Rings. retaining, Design and production with circlips and 1180
Ringway Machine Tools, Ltd. .. 412, 1161
Rivets. Daisy blind 1386
Roberts, J. W., Ltd.:
Asbestos- and glass-reinforced engineering plastics 404
Press-moulded glass-reinforced plastics 461
Robertson, W. H. A., & Co., Ltd.:
Improved facilities at the works .. 383
Production control.. 489
Sendzimir cold-rolling mill incorporating Hoffmann special-purpose close-tolerance roller bearings 425

PAGE

Robinson, F. J., B. Sc.:
Essi-Kongsberg continuous programme generator for numerical control of flame cutting 348
Rocker arms, Machining, at the Ford Lima engine factory 1236
Rockwell Machine Tool Co., Ltd. 9, 104, 108, 320, 575, 1103, 1131, 1538
Rolatruc, Ltd.:
Rough-Rider fork lift truck 1035
Type VB 10 pallet lift truck 71
Rolflat 320 roll straightening machine. Protocol.. 755
Roll feed units for presses. S. P. S. .. 1533
Roll grinding machine. Craven heavy-duty 11
Roll life and surface finish. Improvements in 309
Roll turning. A large tool-holder for .. 872
Roll turning lathe. Craven 17-in. centre profiling.. .. .. 103, 534
Roll turning lathe. Hepworth copying equipment for a 933
Rolls. Kendall & Gent duplex plano-miller for operations on.. 311
Rollamatic type RK-12 roll forming machine for gears. Maag .. 118, 381
Roller-burnishing head. Combined boring and.. 238
Roller burnishing tool. B. T. G.-Madison duplex 50
Roller burnishing tools B. T. G. -Madison Microroller 1193
Rolliguide precision power slide 571
Rolling, Fillet, to increase fatigue life and bending moment of crankshafts 862
Rolling machine. Hegenscheidt super-finishing and fillet 880
Rolling mill. Hoffmann bearings for Sendzimir cold 425
Rolling mill. Sendzimir copper 1320
Rolling operations on thick plate. Froriep hydraulic machine for 1404
Rollwell roller bearing pillow blocks .. 262
Rosenfors types RS-25 and RS-30 F high-speed lathes 1101
Rosenfors type RFU universal milling machine.. 1038
Rotary milling. Machining attachment rings by.. 941
Rotary table. Bowers motor-driven inclinable 825
Rotary-table machine, Fixtures and work-indexing arrangement on Mulhead, for drilling and tapping holes in barrel components for fuel pumps 433
Rotation, Accurate, with hydrostatic pivot bearings 149
Rotax, Ltd.:
Sequential analyser 205
Rotor and pump screw milling machine. Holroyd type 2a auto-cycle 593
Rotors and shafts, Assembling, by bonding 1435
Rough-Rider fork-lift truck. Rolatruc 1035
Rousselle type 6B 60-ton power press 1533
Routing machine for operations on Concord airliner components. Ferranti-controlled 370
Rowen-Arc Divn. of Rubery Owen & Co., Ltd.:
Type TR AC-DC 300-amp. arc welder 988
Rowland, F. E., & Co., Ltd.:
Type F.W. friction welding machine 102, 315
Vertical spindle surface grinders with non-retracting tables 313
See also.. 1209
Royce Electric Furnaces, Ltd.:
Walking beam furnace for sintering and heat treatment work.. 1277
Rubber forming press. Boulton Paul hydraulic 508
Rubber Plastics, Ltd.:
Polyvon polyurethane elastomers for metal forming 1553

PAGE

Rubert, M. P.:
The importance of surface finish control 1256
Rubery Owen & Co., Ltd.:
Demonstration of Sovroweld type A535 3-electrode track mounted Electroslag welding machine 1555
Rowen Arc type TR AC-DC 300 amp. arc welder 988
Rudkin & Riley, Ltd. 1255
Ruffini, Fonderia:
Die casting activities 1543
Rural Industries Bureau. Advisory and technical services of the 548
Russell, S., & Sons, Ltd.:
RS 20 cold sawing machine 106
Russian-built type 6622 duplex milling machine.. 127
Russian welding machine. Demonstration of Sovroweld 1555
Ryder, Thomas, & Son, Ltd.:
No. 10 Verticalauto set up for machining cast iron flywheels 537
See also 433

S

SG iron. Large cross-rail casting in .. 1414
S. I. M. A. type SP 5 pinch-pointing machine.. 878
S. M. G. press. Examples of components produced by fine blanking on an .. 215
S. M. T. heavy-duty double-housing planing machine with milling head .. 194
S. P. S. roll feed units for presses .. 1533
Saalfeld type BMG 63 multi-spindle drilling machine. Fixture built up from standard units and special bush plates mounted on 318
Sack & Kiesselbach 2,000-ton hydraulic press used for die and mould hobbing operations at works of L. Whiting, Ltd. 722
Sacomat pressure die casting machines 821
Saf-Ear-Shield. Parmalee 1131
Safe Production Systems:
S. P. S. roll feed units for presses.. 1533
Safety Products, Ltd.:
Polycarbonate lenses for Vistamax goggles 926
Sales Expansion (Engineering), Ltd. .. 1273
Sales Supplies & Equipment, Ltd. .. 742
Salvi type TM high-speed cold heading machine.. 1534
Sanderson Bros. & Newbould, Ltd.:
Foundation for drop forging hammer 327
Sanding machine. White type TOP/VW abrasive belt 1081
Sandslinger installed at works of Butterley Co., Ltd. 388
Sandvik Swedish Steels, Ltd.:
T-MaX negative rake throw-away tip face mills 967
Saturn tank skin panels. Milling "waffle" pattern in 752
Savings obtained with numerical control. Important 474
Saw. portable tree, Magnesium die castings for 544
Saw sharpening machine. Noble & Lund automatic circular 764
Saws. Baier portable electric metal-cutting 603
Sawada, K.:
New crossrail construction 992
Sawing machine. Birfield automatic cold 1039
Sawing machine. Noble & Lund 22-in. automated type C cold 116
Sawing machine. Russell RS 20 cold .. 106
Sawing machine. Wagner type WKALN 360 automatic circular 31
Scale reader. Hilger & Watts Microptic Mark 2 1528
Scharmann type NC FB132ax horizontal boring machine equipped with Philips tape control system 637

PAGE

Schaudt type ACM automatic camshaft grinder 16
Schloemann A. G. 1146
Schmid & Wezel Biax flexible shaft drive units and power tools 57
Schmidt, H.:
Use of progressive press tools in production of small components 81
Schuler type NFA 500 A automatic notching press. Work loading and unloading equipment and tool reciprocating mechanism on the 746
Schuler Presses, Ltd.:
British type P2E2Sq. 300/2.1/0.5 press 121
Schütte 4-station second-operation attachment 1538
Schutte type SE16 6-spindle automatic, Close-up view of, fitted with cruciform attachment. 320, 1538
Schweppes, Ltd.:
Face shield secured by Velcro fasteners 1042
Scimitar hydro-automatic metal-cutting machine.. 1163
Scoles, C. A.:
The use of air bearings in grinding machines 883
Scottish Machine Tool Corpn., Ltd.:
Double-column planing machine with cross-rail toolbox 379
See also 194
Scrap-metal baling press. Weldall hydraulic 1356
Scrap shears. Eldair No. 2 alligator .. 34
Screw-press. New Hasenclever 200-ton hydraulic 599
Screw-slotting machine. E. W. M. type S6 automatic 204
Screw testing unit. Erichsen type ATECO 530.. 908
Screw thread caliper gauges. Taylor adjustable 131
Screw thread gauge. Harris adjustable 147, 206
Screw threads. Microdeviometer high-accuracy measuring and recording equipment for.. 1378
Screws. Producing Holo-Krome socket-head 662
Sculfort Cadet 50 lathe 918
Sealectro, Ltd.:
Sealectroboard programme board .. 1442
Sealing material, Form Pack 1318
Seat panels and body linings. motor car, Stafford 130-ton hydraulic press for production of 676
Second-operation attachment. Schutte 4-station 320, 1538
Second-operation machine. Special-purpose automatic 627
Second-operation work. Bader S. 111 drum-type machine for 115
Second-operation work. Jones-Shipman type 8435 utility head for 131
Sedgwicks, Ltd.:
Type YH-8 electro-hydraulic press brake 39
Seizure. The problem of protection against 1094
Select-A-Fan spray nozzle. Graco .. 1388
Selectus, Ltd.:
Velcro fasteners for securing face shields 1042
Selfeedrill units. Special-purpose drilling machine incorporating Brookman .. 360
Selson Machine Tool Co., Ltd. .. 25, 40
Sendzimir rolling mill 1320
Sendzimir cold rolling mill. Hoffmann bearings for 425
Sensing valve for power presses. Wellman Ross dual 411
Separators. New Alfa-Laval range of.. 1522

PAGE

Sequence-control panel employed with Nickols system of automatic air operation of capstan lathes 1084
Sequential analyser. Rotax 205
Serva-Levl mounts for jig borer. Barry 167
Service Machine Co.:
Rousselle type 6B 60-ton power press 1533
Services Electronics Research Laboratory:
A complex metal shape formed in one piece 1498
Servo-drive system. Rig employed to demonstrate speed control performance of Pegusus 318
Servomatic Hydraulics, Ltd.:
Hydraulically-driven headstock .. 432
Servomet spark erosion machine. "Metals Research" 1305
Set-ups, Some production, at the works of Pratt Precision Hydraulics . .. 1211
Setting equipment for cutting tools. Herbert Presetter 1261
Setting table, Alzmetall co-ordinate, for drilling machines 1534
Setting unit. Kaiser tool 1029
Shackle forging plant. Etchells high-speed 1258
Shadomaster optical projector, Special fixture employed with a, for checking blade forms 335
Shaft, turning a, from a forging of En. 353 steel. Progres-Jones & Lamson automatic hydraulic copying lathe set up for 434
Shake-out machine. "Vibrator Equipment" vibratory 1278
Shank, Tool-holder, for use with Kearns type 721P horizontal surfacing, boring and milling machine 485
Shape-cutting installation. Stafford high-production 676
Shardlow, Ambrose, Ltd.:
Cutting crankshaft gears on a Barber-Colman hobbing machine 1050
Sharpening and care of high-speed steel gear hobs 1495
Sharpening, hob, machine. Mikron A 60/0 fully automatic 692
Sharpening machine. Heald type 3 tool 120
Sharpening machine. Klingelnberg type AGW 230 hob 1361
Sharpening tungsten-carbide tipped tools. Luke & Spencer double-ended grinder for 44
Shaving cutter for double crowning .. 833
Shaw, Fred M., Co., Ltd. 1037, 1206
Shaw, John, & Sons (Salford), Ltd.:
Baling press for "man-made" fibres 1335
Shear. flying, Link-Belt P.I.V. drive for a 1490
Shear. large slabbing mill, Metalock repair to 336
Shear. Millers Falls type 16 electrically-operated. 766
Shears. Eldair No. 2 alligator scrap .. 34
Shearing, blanking and forming operations, Components of tools for, made from Kirksite A cast zinc 215
Shearing and slitting line. Automatic .. 1445
Shearing tinplate. Carbide blades used for 768
Sheet materials. Forming operations on thin 1096
Sheet metal. Conference on press working of 81, 213
Sheet metal pressings. Examples of .. 216
Sheet metal testing fixture. Pearson Panke type 122 217
Sheet metal testing machine. Hille Engineering 216
Sheet metal working machines. Demonstration of 1108
Sheet metal working machines. East German developments in cold-extrusion and 361

PAGE

Sheet Steel Shearers, Ltd.:
Examples of sheet metal pressings 216
Shell mould foundry. Highly-mechanized 965
Shell moulding. Bevel gears produced by 1222
Sherritt Gordon Mines, Ltd.:
Pure cobalt expanded metal 264
Shield, Face, secured by Velcro fasteners 1042
Shield for hearing. Parmalee 1151
Ships' plates. Autokon system for producing 348
Ships. Production-line building of large 1512
Shoe-centreless grinder. Wotan- & Zimmermann-Werke internal .. 304
Shoe-centreless method. Newall-Keighley type BG machine for grinding radius tracks in inner races for ball bearings by the 486, 1263
Short-run tooling 82
Shovel frames. Welding operations on Michigan tractor 180
Shovels. Production of Chaseside loading 1068
Siemens Schuckert (Gt. Britain), Ltd.:
Machine tool control panels 54
See also.. 859
Sigma Instrument Co., Ltd.:
Measuring head of semi-automatic air gauging machine for checking brake linings 484
Sigmatrol air gauging equipment on Wickman-Scrivener type 2H centreless grinder 1081
Workpiece set up in the gauging head of an Ariel air-electric multi-dimension inspection machine .. 479
Silver alloy for contact springs 973
Simca disc brake caliper die castings.. 1048
Simca water-cooled cylinder head die casting 1046
Simonet & Co., Ltd.:
Semi-automatic second-operation lathes 987
Sinex Engineering Co., Ltd.:
Vibratory casting cleaner 805
Sintered Products, Ltd.:
Sintered helical gears 943
Size control. Blanchard type 18C rotary table surface grinding machine with 13
Size control equipment. Movomatic, Studer grinder fitted with 494
Size control on Mikromat surface grinder. Equipment for automatic 379
Skoda 1000 MB car. Aluminium alloy cylinder block and gearbox pressure die castings for the 1266
Skylux, Ltd. 275
Slack & Parr, Ltd.:
Quicktap multi-spindle tapping machine 764
Slater, R.A.C.:
Notes on the design of a high rate of energy machine incorporating a linear induction motor 995
Slide and bed assembly used in machine tool research. PERA compound .. 276
Slide. Rollguide precision power .. 571
Slide rule for complex numbers. Stanley cylindrical 1439
Slideway cover. Fortox all-Terylene.. 208
Slideway-grinding machine. Waldrich-Coburg type 10FS 1515 9
Slim Line hydraulic cylinders. Vickers Sperry Rand 46
Slitting discs by flame cutting 332
Slitting line. Automatic shearing and.. 1445
Slitting machine. Weybridge 42-in. coil 114
Slugs, brass, Ground and lapped ceramic tubes and, for trimmers and capacitors 549
Small Electric Motors, Ltd.:
Pulse generator for timing S.T.D. telephone calls 1523

PAGE

Smith, Herman, Ltd.:
Installation of Chatteris continuous degreasing plant 1075
Smith, Hugh, (Glasgow), Ltd.:
Edgemill plate edge milling machine 590
Smith, J. & H., Ltd. 338
Smith, W.H., & Co.:
Staveley-Smith positioning system 640
Staveley-Smith type D.T.P.V. equipment for preparing punched tapes 718
Smiths Jig & Tool Co., Ltd., Activities of 333
Snow & Co., Ltd.:
Type V. 60/16 vertical spindle surface grinder 111
Snow Manufacturing Co.:
Unit drilling and tapping heads .. 1537
Snyder Corporation:
Machine with rise-and-fall transfer system 1497
Special machine for balance-milling engine connecting rods 1206
Soag Machine Tools, Ltd. 30, 434, 828, 936
Société d'Applications de Mécanique Industrielle:
Escofier gravity die casting machines and their applications 815, 1043
Société Genevoise Hydroptic-7A CN4 jig boring and milling machine. Swiss built 488
Société Genevoise, Ltd. 432, 488
Société Industrie Fonderie Aluminium:
Application of Escofier automatic gravity die casting machines.. .. 821
Socket screw selector. Holo-Krome .. 229
Söderfors Swedish Steel Co., Ltd.:
Type 167. 11-2520 toolholder for carbide tips 1260
Sogenique Electronics, Ltd.:
Type E linear displacement transducer incorporated in Chesterman height gauge 761
Solar Subsidiary of International Harvester Co.:
Some results obtained with electron beam welding.. 1436
Sole plate. Die cast electric iron .. 325
"Solid Circuits". Production of Texas Instruments 595
Sorter. Minitor metal 1244
Sorting machine for small bearing balls. Suhl 528
Sovroweld type A. 535 3-electrode track-mounted Electroslag welding machine. Demonstration of 1555
Spacesaver vacuum-grip truck 707
Spaghetti for coring ceramic parts. Use of 162
Spanner. The Ratchfix 164
Sparcatron (Mfg.), Ltd.:
Centre of Electro Machining Technology 826
JC162 spark machining unit and SPF80A power supply and control cabinet 30
Spark erosion machine. Agietron .. 1027
Spark erosion machine. Elox type HQP 53 1210
Spark erosion machine. "Metals Research" Servomet 1305
Spark erosion machines. G.K.N. type D1 and D2 26
Spark erosion unit based on Bridgeport milling machine. Linderode 385
Spark machining. Copelmet SM electrode material for 1255
Spark machining. Sprayed-copper electrodes for 1033
Spark machining unit, Sparcatron JC162, and SPF80A power supply and control cabinet 30
Spark machining units. Sparcatron .. 826
Special-purpose automatic second-operation machine 627

PAGE

Special-purpose machine for operations on control valve bodies. Lamb .. 337
Specima type UFD 1600 P Polygon grinder 38
Speed control performance of Pegasus electro-hydraulic servo-drive system. Rig employed to demonstrate 318
Speedfinisher abrasive belt finishing machine. Thos. White type TOP/VW 1081
Speedibender hydraulic press brake. Dreis & Krump 28-ton 128, 538
Speedpress. Browells 15-ton electro-hydraulic 1102
Sperry Gyroscope Co. of Canada, Ltd.: Tape control system for Burkhardt Hyop 65 jig borer 196
UMAC 5 point-to-point tape control system 639
Sperry Gyroscope Co., Ltd. 639
Sphericity interferometer. Hilger & Watts 266
Spindle bearings, Quantity production of motor car fan and water pump .. 1202
Spindle, M. T. I. R. A. model of 2-bearing, for a machine tool 317
Spinning. flow turning and, Leifeld machine set up for producing hopper components by 429
Spiropoint twist drill grinding machine. Cincinnati 1465
Splines in bores of gear blanks. Lapointe HP. 10 machine set up for broaching 591
Spotnails, Ltd.: Spotnailer used in assembling plywood and batten packing case 493
Spra Koat chemicals. "G.C. Electronics" 1162
Spray nozzle. Graco Select-A-Fan .. 1388
Spray painting installation for coating both surfaces of ships' plates on a roller conveyor. Aerograph DeVilbiss airless 1391
Sprayed-copper electrodes for spark machining 1033
Spraying machine. Auteq type 93 continuous strip 440
Spraying. Metco 439 carbide powder for flame 549
Spraying unit. "Automatic Equipment" type CM 600 automatic paint 1155

Spring-set assemblies. Plastics mouldings simplify G. P. O. 1523
Spring testing machine. Avery 50-ton coil 719
Springs. Silver alloy for contact .. 973
Sprint air-operated automatic capstan lathe. Nickols 1197
Sprite WS 400 water-cooled CO_2 welding unit 79
Square shank ends on tap blanks. Set-up on Heckler & Koch machine for milling 435
Square-shaped ends on tap blanks. Hunt machine for milling 968
Staff locating system. Ericall 874

Stafford Tool & Die Co., Ltd.: High-production shape-cutting installation 676
Stainless steel strip. Automatic bright annealing installation for 262
Stand. Helec O.B. comparator 460
Stand. Magco magnetic drill 664
Stands. Alwayse ball transfer 245
Standards. The importance of adhering to 1403
Standards. The importance of adhering to makers' 1498
Standards for wormgears. Rational .. 920
Stanhope Machine Tools, Ltd. 808
Stanley, W.F., & Co., Ltd.: Cylindrical slide rule for complex numbers 1439
Stannine LF acid pickling restrainer .. 1383
Stanton Machine Tools, Ltd.: New showroom 553

PAGE

Stardrive range of driving units. Additions to the L. D. E. P. 1000
Starrett, L.S., Co., Ltd.: Mul-T-Anvil micrometer gauge .. 312
Type 449 micrometer gauge 1413
Starrett, L.S., Co., Webber Gage Divn.: Optical height gauge 1030
Temp-Check temperature measuring instrument 1084
Starter ring gear tooth chamfering machine. Marbaix 1432
Startrite Designs, Ltd.: Acceptance gauge conforming to ARINC specifications 1223
Startrite Machine Tool Co., Ltd.: Startrite-EFI type FR 2 radial drilling machine 33
Statistical analyser. "English Numbering Machines" series 488 666
Staveley Group Research Department: Staveley-Smith positioning system. . 640
Staveley-Smith type D. T. P. V. equipment for preparing punched tapes 718
Ste-Co Products, Ltd.: Range of press brakes 1530
Steam cleaner. Hypressure Jenny .. 742
Steel, Peech & Tozer, Ltd.: Phoenix CM-70 carbon-manganese steel 1445
Steel forgings for large-diameter rolls for steel mills 872
Steel. Phoenix CM-70 carbon-manganese 1445
Steel slabs. New Concast type S continuous casting machine for heavy .. 1146
Steinel GBW 300 horizontal multi-spindle tapper 32
Stencil unit. Lectroetch hand 332
Stevens, H.G., Co., Ltd.: Rollguide precision power slide .. 571

Stiffness compensator for Avery hydraulic testing machines 386
Stirk, John, & Sons, Ltd.: 14-ft. planing and milling machine 1193, 1454
Milling head for mounting on planing machines 1195
Stoddart, T.A., M.I.Prod.E.: Sharpening and care of high-speed steel gear hobs 1495
Stokes, F.J., Corpn., U.S.A.: Mechanical booster vacuum pump units 684
Stokes, F.J., Ltd. 684
Stone-Fry Magnesium, Ltd.: Some examples of magnesium die castings 540
Stone-Wallwork, Ltd.: P.I.V. units with electronic speed control 1166
Stop-Cut type E/C2/28 electronic gauge head. E.A.M. 369

Storage arrangements, Buffer, for die castings 1549
Storage cabinets. Hahn & Kolb No. 4230 tool 63
Straightening machine. Bronx horizontal bending and 1536
Straightening machine. Protocol Rolflat 320 roll 755
Stretching machine for aluminium plate. Fielding & Platt 220
Strip bending machine. Minipress type 15 270
Strip leveller/feeder press equipment. Humphris Modulink 939
Strip mill. Recent developments in connection with the IMI Witton 1319
Strip feed system for Weingarten transfer press 470
Strip. Production of rear axle housings from 64, 292, 564
Strip spraying machine. Auteq type 93 continuous 440

PAGE

Stripper, Paint, for highly polymerized finishes 411
Stripper units for press tools. Urethane rubber 1522
Stronghold spot/projection welder. British Federal 250-kVA 77
Strojimport 1264
Stud welding application. Crompton Parkinson 851
Studer type RM 250 grinding machine set up for finishing a tungsten carbide coated plug gauge 494
Stylus for Surfindicators. Chisel-edge 942
Suction arrangement for glass fibre forming 539
Sud Aviation: Installation of Ferranti-controlled machines for operations on Concord airliner components 370
Suhl, VEB Feinmesszeugfabrik: Angle and parallelism testing instruments 526
Bearing roller inspection machine .. 528
Sorting machine for small bearing balls 528
Sunbeam Corpn.: Use of Du Pont Delrin acetal resin for clock components 919
Sundstrand Rigidmils arranged for use with interchangeable dog bars for machining bulldozer track frames .. 437
Super-finishing and fillet-rolling machine. Hegenscheidt 880
Support. Jager magnetic drill 964
Support member, Carbide, for an internal thread milling cutter 1321
Support rollers for dynamic balancing machines. Work 688
Suproform press. The Boulton Paul .. 508
Surface, Building up a worn bearing, of an axle on a Minarik Journalmaster welding machine 1554
Surface finish comparator. Massi air-operated 525
Surface finish control. The importance of 1256
Surface finish. Improvements in roll life and 309
Surface finish measuring equipment. Zeiss 704
Surface measuring equipment. Profi-corder 593
Surface roughness. New Profilometer for measuring 49
Surfaces of rotation. Indi-Ron measuring machine for checking 532
Surfacing, copy turning, boring and parting-off operations on cast iron cylinder liner. Menziken vertical machine set up for 375
Surfindicators. Chisel-edge stylus for 942
Swaging machine. Kieserling & Allbrecht type AVS 63 non-rotary cold 1473
Swift, George, & Sons, Ltd.: Type 30F series 60 heavy-duty lathe 111, 606
Switches. Multiple roller plunger limit 1220
Sydman (Machine Tools), Ltd. 1389
Sykes Machine Tool Co., Ltd. 126, 1158, 1361
Sykes, W.E., Ltd.: Type V 10C vertical gear generator 42

T

TM Electronics, Inc.: TMC type 2A portable battery-operated transistorized electronic comparator 1448
T-MaX negative rake throw-away tip face mills 967
TOS type AN. 6/40 multi-spindle bar automatic 208
Table, Alzmetall co-ordinate setting, for drilling machines 1534

PAGE

Table. Bowers motor-driven inclinable rotary 825
Table. Burr tape-controlled co-ordinate setting work- 1363
Table. Hahn & Kolb 31½-in. diameter motorized dividing and tilting.. .. 377
Table. Thomas indexing 629
Tables. dividing, Urquhart Microtest range of.. 1331
Tables. Electro-hydraulic lifting 234, 550
Tables. Jackson-Dex indexing 359
Tallies. "English Numbering Machines" series 448 multiple hand 709
Talysurf. Rank Taylor Hobson type 4.. 426
Tandee Mark 1 polystyrene moulding press 1200
Tandem arrangement of Promecam press brakes 794
Tank skin panels. Milling "waffle" pattern in Saturn 752
Tap blanks. Hunt machine for milling square-shaped ends on 968
Tap-flute grinders, Hertlein, in the works of Richard Lloyd, Ltd. .. 1551
Tap grinding machine. Matrix type 68 fully-automatic 9
Tap heads. Heckler & Koch type GF 0 machine set up for milling squares on 435
Tap performance. A method of testing 1364
Taps, broken, and other tools. Marbaix disintegrator for removal of 860
Tape control. Burkhardt Hyop 65 jig borer with Sperry 196
Tape control equipment. Airmec Autoset type N271 573
Tape control equipment. Bendix DynaPoint 32 574
Tape control equipment. Heller punched- 1158, 1160
Tape control equipment for machine tools. A survey of currently-available 572, 632
Tape control. Kearney & Trecker-C.V.A. type 3LP vertical milling machine with Ferranti 14
Tape control. punched, Heid type DZKR 630 production copying lathe with 1161
Tape control. "Rigid" KAB 50 N bed-type die-sinker with Ferranti.. .. 197
Tape control system. Elliott Tele-Probomat 577
Tape control system. Plessey Mark II point-to-point 637
Tape control system. Plessey Mark 2 8-channel, Huller Hubomat drilling and boring machine fitted with .. 376
Tape control system. Sperry UMAC 5 point-to-point 639
Tape control systems. Cincinnati Acramatic Hundred 575
Tape control systems. G.E.C. Mark and Mark Century series of point-to-point 633
Tape-controlled automatic chucking lathe. Pittler Pinumat 1159
Tape-controlled centre lathe. Boehringer type V 800 1158
Tape-controlled chucking automatic. Monforts type NA 300 1160
Tape-controlled co-ordinate positioning drilling machine. Set-up on Jameson 530
Tape-controlled co-ordinate setting worktable. Burr 1363
Tape-controlled drilling machine. B.S.A. type CD32 100
Tape-controlled drilling machine. Giddings & Lewis Numerimite 108, 574
Tape-controlled drilling machine. Town Woodhouse Towntape 766
Tape-controlled Ernault-Somua vertical milling machine 913
Tape-controlled horizontal boring and milling machine. Heller type BRH 65 IW 1360

PAGE

Tape-controlled machines. Hillyer .. 829
Tape-controlled milling machine. Huron-Ferranti 3-dimensional magnetic 334
Tape-controlled sliding-head drilling machine. Burgmaster 1491
Tape-controlled spot welding machine 242
Tape-controlled turret drilling machine. Richmond 990
Tape-controlled turret drilling machine at the works of H.M.Hobson. Burgmaster 708
Tape-controlled turret milling machine. Werner type FV3D 1102
Tape-controlled writing machine reduces preparation time for quotations 1151
Tape-O-Matic tape-controlled drilling machine. Pratt &Whitney type C .. 487
Tape reader for Bendix Dynapoint 32 equipment 226
Tapes, control, for numerically-controlled machine tools. Ferranti plans in connection with the production of 439
Tapes, control, Preparation by computer of director 352
Tapes. Staveley-Smith type D.T.P.V. equipment for preparing punched .. 718
Tapes. Ultra Tronictyper for preparation of N.C. 419
Taper-checking unit. Suhl sine-bar type 527
Taper Micrometer Corpn.: Taper-Mike internal and external micrometers 1448
Taper roller bearing. New Gamet type P 54
Tapping heads. Snow unit drilling and.. 1537
Tapping machine. Kentron Taurus Transfer 4-spindle 1209
Tapping machine. Slack & Parr Quicktap multi-spindle 764
Tapping machine. Steinel GBW 300 horizontal multi-spindle 32

Tapping nuts for pipe fittings. Witzig & Frank multi-spindle machine for boring and 1359
Taurus Transfer 4-spindle tapping machines. Kentron 1209
Taylor adjustable screw thread caliper gauges 131
Taylor, Charles, (Birmingham), Ltd.: Duplex milling machine 200
Independent 4-jaw chucks 145
Type 1680 cutting-off machine .. 113

Taylor Woodrow Construction, Ltd.: Large pressure vessels in prestressed concrete 587

Teaching machines, Experiments with Lamson, at Baker Perkins, Ltd. .. 1550
Technical Development Co.: Ferrous particle detector for gearboxes 521
Tedeco ferrous particle detector for gearboxes 521
Teflon FEP-fluorocarbon film. Heat-shrinkable tubing of 871
Tele-Probomat machine tool control system. Elliott 577
Telearchics, Ltd.: Torque measuring unit 1435
Telecontrol system for recording machine tool utilization at the Ford (U.S.A.) engine factory 1236
Telehoist, Ltd.: Rig to demonstrate speed control performance of Pegasus electro-hydraulic servo-drive system .. 318
Telelube HD lubrication system .. 391
Telematic 2 programme control system. Cincinnati vertical milling machine fitted with 43

PAGE

Télémécanique Electrique (French) tape control equipment on Ernault-Somua vertical milling machine 914
Telemecanique Electrique (Great Britain), Ltd.: Multiple roller plunger limit switches 1220
XD 2 joystick controller.. 981
Telephone calls. timing S.T.D., G.P.O. pulse generators for 1523
Television arrangement. Marconi image amplifying closed-circuit .. 1434
Television microscope. Beck 980
Temperature-measuring instrument. Webber Temp-Check 1084
Templates, Transparent, for checking castings 1489
Templet Industrial Products, Ltd.: New company formed for production of pressings using Templet and Crosland tooling systems 1397
"Temporary" press tools for initial runs 625
Terylene slideway cover. Fortox all-.. 208
Test, Bouncing, for universal joint balls 684
Testing coil springs. Avery 50-ton machine for 719
Testing fixture. Pearson Panke type 122 sheet metal 217
Testing Hoffmann precision miniature bearings. Vibration 1494
Testing instruments. Suhl angle and parallelism 526
Testing machine. British-built Tinius Olsen universal 1333
Testing machine, Denison T48 creep, with controlled atmosphere chamber 1167
Testing machine. Hille Engineering sheet metal 216
Testing machine tool accuracy 1291
Testing machines. New British-built hardness 1443
Testing machines. Stiffness compensator for Avery hydraulic 386
Testing, Materials, and casting inspection in an investment foundry 1486
Testing tap performance. A method of 1364
Testing of tubes. Machines for the hydrostatic 1424
Testing unit. screw, Erichsen type ATECO 530 908
Texas Instruments, Inc. 595
Texas Instruments, Ltd.: Production of Solid Circuits 595
Textile industry. Die castings for the.. 545
Textile Machine Works: Machining large castings on Diatrol II Jigmil 804
ThermoSpray nozzle. New 1253
Thielenhaus type KM 1/26 machine for micro finishing arcuate track surfaces in races for small-diameter bearings 1472
Thielenhaus type MFS 21 machine for grinding and micro-finishing side faces of brake discs 1471
30-98 Co., Ltd., The: Fastrip protector for motor-driven machines 263
Thomas, A.P.L., Ltd.: Unit heads and indexing table 629
Thomas, G.A.H., B.Sc.: The advent of the training computer 1416
Thomson & Joseph, Ltd. 641
Thread chasing machine. Brèche type BR. 300 28
Thread chasing machine. Ebosa type M34 turning and 22
Thread cutting tool. Equipment on Lang 25D lathe for automatic rapid withdrawal of 689
Thread grinding machine. Mikromat automatic universal 302
Thread milling cutter. Carbide support member for an internal 1321

PAGE

Thread rolling machine. Greenwood & Batley ¼-in. 205
Thread rolling machine. Landis-Maiden type 10 TRM 38
Thread rolling machine. Waterbury Farrel type 1015 Threadmaster .. 15
Threading attachment on Manurhin type PF 60B automatic 695
Threading equipment. Landis, Hollow milling with 1485
Threading machine. Cri-Dan Viscam semi-automatic 33
Threadmaster thread-rolling machine. Waterbury Farrel type 1015 15
Three-dimensional magnetic tape controlled milling machine. Huron-Ferranti 334
Three-dimensional measuring machine. Ferranti 472
Three-dimensional milling machine set up for production of wind tunnel scale model. H.P.E. Contourmatic 333
Throw-away carbide tips. Galtona cartridge-type holders for 857
Throw-away tip face mills. T-MaX negative rake 967
Throw-away tip toolholders. Protolite Futurmill cutters and 132
Throw-away tip type face milling cutters. Demonstration of Cutanit Compact Junior 689
Tiles. Drilling acoustic 712
Tillman, H.R.: Improved method of cutting off waveguide tubing 190
Time recorder. Venner type SHRI elapsed 1494
Timing relay. Brookhirst Igranic type 906 1187
Timing S.T.D. telephone calls. G.P.O. type 21A pulse generator for .. 1523
Tin Research Institute: Tin in cast iron 168
Tinius Olsen Testing Machine Co.: British-built universal testing machine 1333
Tinplate. Carbide blades used for shearing 768
Tiplap tool lapping machine 310
Tool and cutter grinder. Artillerie-Inrichtingen type U2 119
Tool grinding and lapping machine. Meddings-E.M.G. type SF-12 .. 125
Tool grinding machine. Hammond type CBE-77 electrolytic 23
Tool grinding machine. Kombi-Schliff type EL 600 electrolytic 268
Tool heads. Chandler-Duplex boring and facing 1535
Tool lapping machine. The Tiplap .. 310
Tool presetting arrangements 1011
Tool setting unit. Kaiser 1029
Tool sharpening machine. Heald type 3 120
Tool storage cabinets. Hahn & Kolb No. 4230 63
Tools, Ceramic cutting - where can they be used today? 900
Tools, power, Biax flexible shaft drive units and 57
Tools for shearing, blanking and forming operations made from Kirksite A cast zinc material .. 215

Toolbox, cross-rail, S.M.T. double-column planing machine with 379
Toolholder for carbide tips. Soderfors type 167. 11-2520 1260
Toolholder for centre lathes. Bimax turret-type 881
Toolholder. Large boring bar with Kendex 1099
Toolholder for roll turning. A large .. 872
Toolholder shank for use with Kearns type 721P horizontal surfacing, boring and milling machine 485

PAGE

Toolholders. throw-away tip, Protolite Futurmill cutters and 132
Tooling. B.T.G.-Madison, Herbert No. 4 Senior turret lathe set up with 1083
Tooling for Bronx press brakes. Templates of standard 213
Tooling & Equipment Engnrs. (Manufacturers), Ltd.: Pilot-run press for expanded polystyrene mouldings 1200
Tooling for lathes. Quick-change preset 604
Tooling. progressive, Some possibilities of 213, 214
Tooling. Short-run 82

Tooling systems. Crosland and Templet, Production of pressings using .. 1357
Tooling, Urethane - applications and advantages 1012
Tooling. Wickman Wimet cartridge .. 145
Toolmaking activities in die casting foundry 1544
Tooth profile relieving lathe. Morando TS 20 944
Tornetic torque controls facilitate delicate machining operations. "Computerized" 1076
Torque amplifier. Orbit hydraulic .. 996
Torque control, "Computerized" Tornetic, facilitates delicate machining operations 1076
Torque measuring unit. Telearchics .. 1435
Torquemeter. Dawe type 1502 digital .. 875
Torvac, Ltd.: Modular vacuum unit with electron beam equipment 991
Toshiba Machine Co., Ltd.: New crossrail construction 992
Town Woodhouse, Ltd.: Towntape tape-controlled drilling machine 766
Townsend-Coates, Ltd. 1209, 1497
Townsend No. 2 drilling and forming machine 37
Tracing equipment. Man-Au-Trace hydraulic 697
Tractor shovel frames. Welding operations on Michigan 180
Tractor for welding. Interlas Beetle .. 940
Tractors and earth-moving equipment. Production of components for large 452
Track frames for bulldozers and loaders. Machining 437
Training computer. The advent of the .. 1416
Transfer honing line for 3-cylinder engine blocks for Wartburg car. Naumburg automatic 308
Transfer honing machine, Nagel type 2TS-10-35-1A, for operations on 4- and 6-cylinder engine blocks 1198
Transfer line, Snyder 217-ft. long, with rise-and-fall system 1497
Transfer machine. Automatic assembly and precision reaming on a 248
Transfer machine. Zagar platen-type .. 712
Transfer machining of differential carriers 246
Transfer moulding plastics components. B.I.P. machines for 373
Transfer press. Chappuis horizontal, Producing ribbon cages for Pollard standard ball bearings on a 420
Transfer press. A large highly-versatile 466
Transfer presses. Examples of drawn components produced on I.W.K. .. 215

Transfer stands. Alwayse ball 245
Transfer units. Collis TransVeyor omni-directional ball-type 1254
"Transferline" assembly machine .. 515
Transmission unit. Power 929
Transmissions. Bosch hydrostatic .. 1051
Transparent templates for checking castings 1489

PAGE

Transportation of components. Wire baskets for 1165
TransVeyor omni-directional ball units. Collis 1254
Trawsfynydd Nuclear Power Station, Components of a foil-holder system for use with the, moulded from Maranyl A100 889
Trebel type FV30A vertical single-plane balancing machine 513
Trent type T.U.1 and T.U.2 unit heads 130
Trent unit head. Special-purpose machine incorporating a 317
Trepel (U.K. Sales), Ltd.: Electro-hydraulic lifting tables 234, 550
Trichloroethylene degreasing plant. Chatteris continuous 1075
Trimming and forming machine for metal pressings. MBM 1109
Tronictyper for preparation of N.C. tapes. Ultra 419
Tru-Trace Corporation 697
Truarc Retaining Rings Divn., Waldes Kohinoor, Inc.: Design and production with circlips and retaining rings 1180
Truck. Hyster vacuum-grip 707
Truck. Rolatruc Rough-Rider fork-lift 1035
Truck. Rolatruc type VB 10 pallet lift 71
Truck. WBC lightweight box 1032
Try, Gordon, Ltd.: Machine tool and equipment demonstration 1446
See also 944
Tube and bar deburring unit. Burflex .. 754
Tube bending machine. Type 62LD Leonard Bendmaster hydraulic .. 858
Tube, Cupralum, for acid heating and cooling coils 1497
Tube cutting-off machine. Vogel 2000 automatic 1536
Tube feeding equipment. Brookes automatic 602
Tube flaring machine. Cheshire 666
Tubes, ceramic, and brass slugs for trimmers and capacitors. Ground and lapped 549
Tubes. ESAB unit for automatically welding condenser 372
Tubes. forming heated plates into, Fielding 2,000-ton press for 1405
Tubes, Ltd.: Steel tubes for hydraulic cylinders .. 1469
Tubes. Machines for the hydrostatic testing of 1424
Tubes, welding, to end plates. ESAB high-speed equipment for 805
Tubing. Improved method of cutting off wave-guide 190
Tubing of Teflon FEP-fluorocarbon film. Heat-shrinkable 871
Tufnol, Ltd.: Typical master patterns for drop forging dies 1336
Tumblex TJ abrasive material for vibratory finishing. Norton 1431
Tungsten carbide powder for flame spraying. Metco 439 549
Tungsten-carbide tipped cutters. New Clare 50
Tungsten-carbide tools. Luke & Spencer double-ended grinder for sharpening 44
Tungsten carbide. Wearcarb wear-resistant material incorporating .. 1328
Tuplin, W.A., D.Sc., M.I.Mech.E.: Notes on design of crossed helical gears 365, 999, 1170
Rational standards for wormgears .. 920
Turbine blades. Lapointe horizontal machine set up for broaching fir-tree root forms on 375
Turbine blades. Set-up on Kearns series 45 milling and boring machine for operations on experimental 480

PAGE

Turbine-generator frames. Numerically-controlled "machining centre" for producing completely machined .. 1411
Turbine rotor material. New 768
Turner & Brown, Ltd.:
New liquid-plastics treatment for floor surfaces 314
Nutracote plastics coating .. 1253
Turner, Henry, (Machine Tools), Ltd. 692
Turning attachment. Holdridge radius 1535
Turning and boring mill. Japanese-built O-M type TMS-30/70 vertical 936
Turning, Copy, motor car components on a Dubied lathe 789
Turning and facing machine, H.P.E. plunge- 322
Turning operations. Numerical control for 955
Turning railway wheel sets. Hegenscheidt under-floor lathe for 1026
Turning. Refinements for accurate .. 843
Turning a small hand bell from brass bar. Colchester Chipmaster lathe set up for 1031
Turning and thread chasing machine. Ebosa type M34 22
Turning tools. Galtona milling cutters and 47
Turret-head machines for multiple operations. Workmaster 739
Turret lathe, Czech, incorporating a 4-position turret mounted on a power-operated cross-slide 1384
Turton, George, Platts & Co., Ltd.:
Installation of Avery coil spring testing machine 719
Twist drill grinding machine. Cincinnati Spiropoint 1465
Twist drill point grinding, Demonstration of, on Herbert Hunt DG 100 machine 692
Two-dimensional inspection machine. Ferranti 473
Typits typewriter characters 1165
Tyre-mould segment. Die cast 326

U

UKM unit-construction inspection equipment. The Metron 1188
U.S. Industries, Inc.:
Horizontal cold extrusion press .. 1130
U.S. machine tool exports 169, 279, 497, 947, 1003, 1174, 1338
U.S.A.B. 10-80 internal and face grinding machine 1447
Ultra Electronics, Ltd.:
Tronictyper for preparation of N.C. tapes 419
Ultrasonic bonding machine for synthetic fabrics. Omega S.L.21 606
Ultrasonic cleaning plant. Hall automatic 167
Ultrasonic flaw detector. Ultrasonoscope Mark V 981
Ultrasonic weld examination machine. Special Babcock & Wilcox 1409
Ultrasonoscope Co. (London), Ltd.:
Mark V ultrasonic flaw detector .. 981
UMAC 5 point-to-point tape control system. Sperry 639
Uni-Lox cold-pressed reinforced grinding wheel 250
Unic industrial floor polisher 823
UNIcrimp tool. Plessey bench-type .. 773
Union type UF.5 universal milling machine 123
Unit contactors. Allen West UAC .. 607
Unit-construction inspection equipment. The Metron UKM 1188
Unit die casting dies 1548
Unit drilling head. Hosan 3½-in. stroke 1163
Unit drilling and tapping heads. Snow .. 1537
Unit head. Special-purpose machine incorporating a Trent 317

PAGE

Unit heads and bases. Kearney & Trecker-C.V.A. special-purpose milling machine built from standard range of 665
Unit heads. Thomas 629
Unit heads. Trent type T.U.1 and T.U.2 130
Unit wheelhead for cylindrical grinding. Jones-Shipman type 1080 1036
Units. Collis TransVeyor omni-directional ball 1254
United Aircraft Corpn.:
Hamilton-Zeiss Division:
Electron beam welding equipment for operations on large parts 681
United CO_2, Ltd.:
Exothermic gas generators 1537
United Engineering & Foundry Co.:
* A heavy-duty headstock 211
United Power Co., Ltd.:
Components of foil-holder system for use in nuclear power station 889
Open days 221
United Steel Companies, Ltd. .. 1146, 1445
Unitex, Ltd.:
Multican X castable polyurethane .. 1305
Universal Grinding Wheel Co., Ltd.:
Uni-Lox cold-pressed reinforced grinding wheels 250
Up-setting and forging installation. Hasenclever automatic 477
Uranium available for catalysts 528
Urethane rubber stripper units for press tools 1522
Urethane tooling - applications and advantages 1012
Urethanes as press tool materials. Advantages of 347
Urquhart Machine Tools, Ltd.:
Microtest dividing head 1103
Microtest range of rotary dividing tables 1331
Used machine tools. Increasing productivity of 930
Utility head for second-operation work. Jones-Shipman type 8435 131
UVA U-55 internal grinding machine .. 209

V

Vactric Control Equipment, Ltd.:
Vacsyn slow speed gearless motor.. 1216
See also 521
Vacuum chucks. Abwood 51, 748
Vacuum die casting process. Nelmor .. 1546
Vacuum pump units. Stokes mechanical booster 684
Vacuum unit with electron beam equipment. Torvac modular 991
Valve block. Huller Hubomat 8-spindle drilling and boring machine set up for machining a cast iron hydraulic 376
Valve bodies. Lamb special-purpose machine for operations on control .. 337
Valve body production. Some set-ups for hydraulic 1211
Valve component of complex shape formed in one piece 1498
Valve. "Fluid Power" type 2A hydraulic 940
Valve forgings. Hasenclever electric upsetting machine installation for automatic production of poppet .. 477
Valve, sensing, for power presses. Wellman Ross dual 411
Valve spools. Producing 1213
Valves. Audco Lumo treated 1492
Valves. Martonair sub-base mounted pneumatic 263
Van Moppes, L.M., & Sons (Diamond Tools), Ltd.:
Short courses for diamond tool users 1311

PAGE

Van Norman Lectro-Cam type 2MSR radius grinder for bearing races. Loading arrangement on 378
Vandervell, C.A.:
Plastics bearings for industry .. 974
Vapour collectors. Mistkop 61
Vari-Hyspeed vertical bandsawing machine. Midsaw 125
Vaughan Associates, Ltd.:
Hole chamfering and deburring machine 273
Special-purpose machine incorporating a Trent unit head 317
Trent T.U.1 and T.U.2 unit heads.. 130
See also 15, 23, 38, 513, 1387
Vauxhall Motors, Ltd.:
Installation of Endomatic 7-stage link line for motor car layshafts .. 1306
Vectormeters. Avery dynamic balancing machine equipped with twin 486
Velcro fasteners. Face shield secured by 1042
Venner, Ltd.:
Type SHRI elapsed time recorder .. 1494
Vernet-Promat type V.P.I.A. hydraulically-operated numerically-controlled equipment for punching holes in steel angle sections and cropping sections to length 919
Versa-Trace copying equipment. Hepworth-Honeywell agreement on.. 1468
Verticalauto set up for machining cast iron flywheels. Work loading and unloading attachment on No. 10 .. 537
Vertimax No. 3 vertical-spindle production lathe set up for machining a flywheel housing adapter plate .. 483
Vibrashock No. D 208 mounting pad .. 867
Vibration testing Hoffmann precision miniature bearings 1494
Vibrator. Dowty Rotol 100,000-lb. thrust hydraulic 74
* Vibrator driving-unit for very small cutting tools. A 924
Vibrator Equipment Co.:
Vibratory shake-out machine 1278
Vibratory casting cleaner. Sinex .. 806
Vibratory deburring to improve product reliability 758
Vibratory feeders for mechanized work handling 1292
Vibratory finishing. Norton Tumblex TJ abrasive material for 1431
Vibromatic finishing machine. Hockley type AV1/1 867
Vibroskop for checking balance of grinding wheels 302
Vice. Erbu 36 Quickspanner swivelling-head bench 1381
Vickers-Armstrongs (Engineers), Ltd.:
Drawn components produced on I.W.K. transfer press 215
See also 1131
Vickers Sperry Rand, Ltd.:
Slim Line hydraulic cylinders .. 46
Vickers-Detroit in-line piston pumps and motors 1244
Vickery, James H., & Co., Ltd. .. 828
Viscam semi-automatic threading machine. Cri-Dan 33
Vistamax goggles. Polycarbonate lenses for 926
Vodera, Ing. Vaclav:
Building electric railway locomotives in Czechoslovakia 236
Vogel Tool & Die Corpn.:
Type 2000 automatic cutting-off machine for tubing 1536
Volkert Stampings, Inc.:
Examples of small components produced with progressive press tools 81

PAGE

W

WBC Container, Ltd.:
Lightweight box truck 1032
"Waffle" pattern in Saturn tank skin panels. Milling 752
Wagner type WKALN 360 automatic circular sawing machine 31
Waldes Kohinoor, Inc.:
Truarc Retaining Rings Divn.:
Design and production with circlips and retaining rings 1180
Waldrich-Coburg type 10FS 1515 slideway grinding machine 9
Wallis Engng. Co. (Birmingham), Ltd.:
Autogil type 36 guillotine 1333
Wandsbeker Werkzeug Gesellschaft Beinhoff & Co.:
Barson-Combinat bandsawing and filing machine 1104
Warburton-Brown, D., A.M.I.Mech.E.:
Abrasives for industry 795, 1087
Cost saving by diamond recovery .. 1217
Ward capstan lathes. Mercer air-operated bar feed unit for 1042
Ward-Riddle gun-drilling attachment .. 1037
Ward, Thos.W., Ltd. .. 124, 201, 878
Walker Crosweller & Co., Ltd.:
Die casting installation for production of brass components for mixing valves 887
Warner, Son & Co. (Engng.), Ltd.:
Progressive press tool 888
Warner & Swasey types 1 and 3 AC single-spindle chucking automatics. Set-ups on 1195, 1196
Warner & Swasey/Elliott Tele-Probomat tape control system 577

Washing machine component. Die cast 1049
Washing machine tubs produced by matched die moulding procedure .. 461
Watch parts, Steel, produced on Maypres Kinematic machine 1324
Water channel or flume for supply to Ship Hydrodynamics Laboratory .. 1502
Water damage associated with fires. Reducing 374
Waterbury Farrel type 1015 Thread-master thread-rolling machine.. .. 15
Watts, William, Ltd. 318, 379

Waveguide tubing. Improved method of cutting off 190
Wearcarb wear-resistant material. Firth Sterling 1328
Webber, John:
Machinable carbide press tools - some design considerations 582

Webber optical height gauge 1030
Webber Temp-Check temperature measuring instrument 1084
Weingarten, Maschinenfabrik, A.G.:
A large highly-versatile transfer press 466
Weld examination machine. Special Babcock & Wilcox ultrasonic 1409
Weld-fabricated steel structures produced by Weldall & Assembly, Ltd. 852
Weldall & Assembly, Ltd.:
Activities of the company 852
Eldair No. 2 alligator scrap shears 34
Hydraulic scrap metal baling press 1356
Weldangrind, Ltd.:
Building up a worn bearing surface of an axle on a Minarik Journalmaster welding machine 1554
Welder. Rowen-Arc type TR AC-DC 300-amp. arc.. 988
Welding applications. Crompton Parkinson stud 851
Welding. Backing bar automation for automatic 685
Welding condenser tubes. ESAB unit for automatically 372

PAGE

Welding, Demonstration of stud, with Cycatron capacitance discharge type equipment 214
Welding Engineering Exhibition. The 1964 77
Welding and forming methods used in the production of rear axle housings from strip 64, 292
Welding gun. A.R.O. portable spot .. 55
Welding head of automatic circumferential butt and fillet welding machine. Shielded-arc 221
Welding heads. Advantages of lateral reciprocation of automatic 1152
Welding installation for Dowty pit props. A.I. 1132
Welding machine. B.O.C. fully-automatic portal beam 165
Welding machine. British Oxygen consumable-nozzle electro-slag .. 411
Welding machine. British Federal 250-kVA Stronghold spot/projection 77
Welding machine. Demonstration of Sovroweld type A.535 3-electrode track-mounted Electroslag 1555
Welding machine. English Electric electro-slag 74
Welding machine ESAB automatic .. 628
Welding machine, Large electro-slag, at the Babcock & Wilcox works .. 1408
Welding machine. Meritus type A.B. 5 air-operated butt 80
Welding machine. Minarik Journal-master, Building up a worn bearing surface of an axle on a 1554
Welding machine for motor vehicle parts. Haddon multiple-spot 299
Welding machine. Oerlikon-Junkers coil strip 1319
Welding machine. Rowland type F.W. friction 102, 315
Welding machine. Tape-controlled spot 242
Welding and machining operations in the production of Chaseside loading shovels 1068
Welding operations on large parts. Electron beam 681
Welding operations on Michigan tractor shovel frames 180
Welding of perimeter type motor car chassis. Automatic CO_2 1476
Welding small diameter tubes to end plates. ESAB high-speed equipment for 805
Welding. Some results obtained with electron beam 1436
Welding. tractor for, Interlas Beetle .. 940
Welding unit. Interlas semi-automatic CO_2 1104
Welding unit. Sprite WS 400 water-cooled CO_2 79
Wellman Crane & Machine Co., Ltd.:
2-ton forging manipulator 824
Wellman Smith Owen Engineering Corpn., Ltd.:
Wellman Ross dual sensing valve for power presses 411
Welsh Metal Industries, Ltd.:
G.K.N. type D1 and D2 spark erosion machine 26
Sprayed-copper electrodes for the G.K.N. spark erosion machine .. 1033
Wendt type PS.100 E electrolytic grinder 202
Wendt electrolytic grinding machines .. 832
Werdau, VEB Massindustrie:
Massi Aeropan air gauging equipment 524
Massi air-operated surface-finish comparator 525
Werner, Fritz:
Type FV3D tape-controlled turret milling machine 1102
Western Electric Co.:
Improved method of cutting off waveguide tubing 190

PAGE

Westinghouse Electric Corpn.:
Installation of 8-axis horizontal boring machine with numerical control 1411
Atomic Fuel Division:
Electron beam welding operation on large parts 681
Westinghouse Electric International Co.:
New facilities at the astro-nuclear laboratory 814
Westland Aircraft, Ltd., Precision Casting Divn.:
Materials testing and casting inspection in the investment foundry 1486
Westwind Developments, Ltd. 659
Westwind Turbines, Ltd.:
New range of grinding units with air bearings 659, 725
Westwood Stationery, Ltd. 597
Weybridge Machine Tool Co., Ltd.:
42-in. coil slitting machine 114
* Wheel dressing attachment for a centreless grinding machine 656
Wheel dressing attachment. Optidress 857
Wheel sets. railway, Hegenscheidt under-floor lathe for turning 1026
Wheel. Swedish-made Hakansson cut-off 1243
Wheels, Making 1,400,000, per month 844, 956, 1113, 1124
Wheelhead for cylindrical grinding. Jones-Shipman type 1080 unit .. 1036
Whessoe, Ltd.:
Automatic writing machine reduces preparation time for quotations .. 1151
Whistler, S.B., & Sons, Inc.:
Urethane rubber stripper units for press tools 1522
White S.S., Industrial Division:
Airbrasive tool for deburring .. 438
White, Thomas, & Sons, Ltd.:
Type TOP/VW Speedfinisher abrasive belt finishing machine 1081
Whiting, L., Ltd.:
Use of 2,000-ton Sack & Kiesselbach hydraulic press for die and mould hobbing operations 722
Whitney, W.A., Mfg. Co.:
Type 791 × 18 portable hydraulic punch 828
Whythe, D.J., B.Sc. (Eng.):
Cylindrical slide rule for complex numbers 1439
Wickman Machine Tool Manfg. Co., Ltd.:
Building machine tools 1245
Wickman Machine Tools Sales, Ltd.:
3-day exhibition 999
See also 19, 121, 746, 1028, 1081, 1083, 1085, 1192, 1193, 1195, 1198, 1210, 1360
Wickman-Scrivener, Ltd.:
Type 2H centreless grinder 1081
Type 18/20 duplex face-grinding machine set up for finishing bearing rings 1083
Wickman Wimet, Ltd.:
Cartridge tooling 145
Economill face milling cutter .. 263
Facing cutter in expanded polystyrene moulded packaging.. 1200
Wicksteed, Charles, & Co., Ltd.:
Set-up on Hydramatic hacksawing machine 835
Wiese, Arthur R.:
The possibilities for automating assembly operations 514
Wiggin, Henry, & Co., Ltd.:
Film: Metal versus heat 890
Long life of Nimonic components for turbo-jets 800
Nilo alloy 36 for long length gauges 1415
Wilkins & Mitchell, Ltd.:
75-ton clipping press 198, 609
Williams Clinch, Ltd.:
Absorbent cloths for cleaning.. .. 1321

PAGE
Williams, H., & Son, Ltd. 1243
Willson Lathes, Ltd.:
New centre lathes 122
Wind tunnel model. Huron-Ferranti milling machine set up for machining a stainless steel 334
Wind tunnel scale models produced by contour milling, Manganese bronze 533
Window frames. Redman bending machine for motor car 1191
Window latch and lever produced on Maypres machine 1327
Wiping cloths. Keywipes 1321
Wire baskets for transportation of components 1165
Wire-drawing machine. Fast-Draw .. 744
Wire stranding machines. Large-bore Hoffmann bearings for 539
Witzig & Frank multi-spindle machine for boring and tapping nuts for pipe fittings 1359
Wood pattern machining on Huron-Ferranti tape-controlled miller .. 334
Woods of Colchester, Ltd.:
Aerofoil fan installation for suction arrangement for glass fibre forming 539
PAGE
Woods, Peter F., A.I.W.E.:
Advantages of lateral reciprocation of automatic welding heads 1152
Backing bar automation for automatic welding 685
Worktable. Burr tape-controlled co-ordinate setting 1363
Worm-gear reduction unit. Fenner Hainsworth 1415
Worm-geared reduction units. Type J range of Motorgear 53
Worm-gears. Rational standards for .. 920
Work handling equipment on Newall-Keighley angle-approach machine. Automatic 320
Work handling. Vibratory feeders for mechanized 1292
Work loading and unloading arrangement. Czech model of air-operated gantry-type 1385
Work loading and unloading equipment on Gildemeister 8-spindle chucking automatic 321
Work support rollers for dynamic balancing machines 688
Workmaster, Ltd.:
Turret-head machines for multiple operations 739
PAGE
Wotan & Zimmermann shoe-centreless internal grinder 304
Writing machine, Automatic, reduces preparation time for quotations .. 1151
Wunsch, H. L.:
The use of air bearings in grinding machines 883
Wyvern Machines, Ltd.:
4-spindle facing machine 15

Z

Z. F. magnetic clutches 859
Zagar, Inc.:
Zagar-Dex gearless multi-spindle equipment 710
Zeiss, VEB Carl:
Developments in measuring equipment 700
Zeulenroda automatic lamination notching press 363
Zielinski, Mgr.-Inz. Zbigniew:
A method of testing tap performance 1364
Zinc and magnesium die castings.
Some examples of 540
Zwicky, G., (London), Ltd. 36, 60, 115, 270, 861

AGE
304
1151
883
15
859
710
700
363
1364
540
115,
881